JOHN MUIR MEMORIAL NUMBER

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VOLUME TEN

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John Muir

SIERRA CLUB BULLETIN

VOLUME TEN NUMBER ONE

SAN FRANCISCO
JANUARY
1916

A Message and Appreciation

from

James Bryce

TO MY FRIENDS AND FELLOW MEMBERS OF THE SIERRA CLUB:

May I venture to express to you the sorrow with which the news of the death of our friend, the venerable John Muir, has filled me? He was the patriarch of American lovers of mountains, one who had not only a passion for the splendours of Nature, but a wonderful power of interpreting her to men. The very air of the granite peaks, the very fragrance of the deep and solemn forest, seem to breathe round us and soothe our sense as we read the descriptions of his lonely wanderings in the Sierras when their majesty was first revealed. California may well honour the service of one who did so much to make known her charms and to shield them from desecration. And you of the Club will cherish the memory of a singularly pure and simple character, who was in his life all that a worshipper of nature ought to be.

February 19th, 1915
Hindleap, Forest Row
Sussex

JOHN MUIR—PRESIDENT OF THE SIERRA CLUB

By William E. Colby

John Muir was the Sierra Club's first President and held that office for twenty-two years—until his death. The Sierra Club was organized in 1892 largely as a result of the wide-spread interest in California's wonderful mountain playgrounds, which had been aroused by his twenty years of preaching the necessity for their preservation before it should become too late. The Yosemite National Park had just been created as one result of his splendid work. While we could have this great leader of all true mountaineers and lovers of "pure wildness," it was unthinkable that any one else should hold the office of President.

It was my good fortune to be Secretary of the Club for the last fifteen years of this period and I came to know this wonderful man as I have known few others. It is a priceless privilege to be in close contact with a man whose mind was as pure and whose ideals were as high as were John Muir's, and moreover, one who so thoroughly lived up to this ideal purity.

John Muir will never be fully appreciated by those whose minds are filled with money getting and the sordid things of modern every-day life. To such Muir is an enigma—a fanatic —visionary and impractical. There is nothing in common to arouse sympathetic interest. That anyone should spend his whole life in ascertaining the fundamental truths of nature and glory in their discovery with a joy that would put to shame even the religious zealot is to many utterly incomprehensible. That a man should brave the storms and thread the pathless wilderness, exult in the earthquake's violence, rejoice in the icy blasts of the northern glaciers, and that he should do all this alone and unarmed, year in and year out, is a marvel that but few can understand. These solitary explorations were quite in contrast with the usual heavily equipped expeditions which undertake such work. John Muir loved and gloried in this sort of life and approached it with an enthusiasm and power of will that made hardships and those things which most human beings consider

essentials, mere trifles by comparison. He was willing to subordinate everything in life to this work which he had set out to do supremely well, and it is little wonder that he attained his goal.

His latter days were so full of the rich experiences of these earlier years of devotion to his chosen work and he looked with such calm and serenity out upon the feverish haste and turmoil of those about him, engaged in making everything within reach "dollarable," that he seemed to be living in a world apart—a world created by his own wonderful spirit and efforts.

To those who thought him impractical and visionary, it is only necessary to point out his early skill as an inventor, which, if continued, would have made him world famous, or to his success as an orchardist, making his friends, the trees, bear as they had never been known to bear before or since. But these activities were chosen mainly because they seemed the duty of the hour and when finished were left for the nobler pursuits that lay nearest his heart.

His true position as a geologist will never be adequately recognized because his writings on his geological studies were so minimized by contrast with that greater field of beautiful literature in which he excelled. But any one who has read his "Studies in the Sierra" (now being reprinted in the SIERRA CLUB BULLETIN), and who realizes that his views on glaciation as bearing on the origin of Yosemite Valley were written at a time when geologists of great eminence were advancing other theories, and had no patience with any glacial theory, will appreciate that John Muir was no ordinary student of the physical laws of nature. I ran across the following extract from a little pamphlet on the Yosemite, published in 1872:

"There is and has been for two years past, living in the Valley, a gentleman of Scottish parentage, by name John Muir, who, Hugh Miller like, is studying the rocks in and around the Valley. He told me that he was trying to read the great book spread out before him. He is by himself pursuing a course of geological studies, and is making careful drawings of the different parts of the gorge. No doubt he is more thoroughly acquainted with this valley than any one else. He has been far up the Sierras where glaciers are now in action, ploughing deep

depressions in the mountains. He has made a critical examination of the superincumbent rocks, and already has much material upon which to form a correct theory." *(The Yosemite,* by John Erastus Lester.) (1873.) Prepared for and read before the Rhode Island Historical Society.

When we bear in mind the fact that at that time Muir had been in the Valley only a little over two years, and that his glacial theory of the origin of the Valley is now quite generally accepted, this prophecy is all the more striking.

John Muir himself can tell more fittingly than I am able to his relation to the Club and, therefore, the following extracts have been selected from some of his letters. From his home near Martinez he wrote under date of January 15, 1907: "I herewith return the draft of a Club report on Kings River region with my hearty approval, excepting the first two pages of the MS., in which the Yosemite and Kings River regions are compared. Every possible aid and encouragement should be given by the Club for the preservation, road and trail building, etc., for the development of the magnificent Kings River region, but unjust one-sided comparisons seeking to build up and glorify one region at the expense of lowering the other is useless work and should be left to real estate agents, promoters, rival hotel and stage owners, etc. Certainly the Club has nothing to do with such stuff, tremendous advantages, wealth and variety of mountain sculpture depending on greater depths and heights, etc., suggest boys with eyes to depth and height of butter and honey, seeing tremendous advantages in one slice of bread over another cut from the same loaf.

"Have you seen the President's Proclamation of Dec. 8, 1906, creating the 'Petrified Forest National Monument' under the Act of Congress of June 8, 1906? Contains 60,776.02 acres, and includes the Blue Jasper Forest Helen and I found. The large new forest to the north of Adamana is to be added to the above. Come up some Saturday night or Sunday and talk over matters."

Martinez, Jan. 13, 1908: "Of course I heartily approve of the proposed vote of thanks to Mr. Kent, and suggest a slight change in the form of the resolution, as follows:

" '*Resolved:* That the Sierra Club extend a hearty vote of

PLATE CXXXI.

SIERRA CLUB BULLETIN, VOL. X.

A LESSON ON THE TRAIL FROM JOHN MUIR
Photo by Geo. R. King

JOHN MUIR IN THE BIG ARROYO CAMP, KERN CANON, 1908
Photo by Walter L. Huber

thanks to Mr. William Kent in testimony of its appreciation of his noble gift to the Federal Government of the Redwood Cañon on Mount Tamalpais, with its magnificent primeval groves of *Sequoia sempervirens,* to be devoted as a public park and pleasure-ground to the people forever.'"

Los Angeles, Cal., Jan. 16, 1911: "Thanks for your kind letter and the book which you forwarded.

"I am now at work on the Kings River yosemites, and I would like to have the part of the Kings River region which ought to be added to the General Grant and Sequoia National parks definitely described, because I wish to recommend the preservation of the region in the Yosemite Guide-book. . . . "

New York City, May 26, 1911: "I have just received a copy of 'My First Summer in the Sierra.' It is dedicated 'To The Sierra Club, Faithful Defender of the People's Playgrounds.' Am stopping with the Harrimans. The above will be my address until the first of July.

"The American Alpine Club is arranging to give me a dinner, at which you may be sure there will be a lot of Hetch Hetchy work. . . . .

"We may lose this particular fight, but truth and right must prevail at last. Anyhow we must be true to ourselves and the Lord."

Castle Rock, Garrisons on Hudson, N. Y., June 27, 1911: "I've just written to Mr. McFarland assuring him of my help in the Niagara fight and my eagerness to meet him. I had not in the least forgotten him or his magnificent work, but since coming here I've had so much Hetch Hetchy and book work to do, besides planning for S. America, and have also been tousled and tumbled hither thither, dinnered, honored, etc., almost out of my wits, I could never set a day to see him. The society weather is now growing calm as the thermometer rises, and I hope to get a quiet week or two to see friends and finish my Yosemite book. . . .

"The American Alpine Club gave me a fine dinner, so did the Appalachian, and a great time at the Yale Commencement, getting honor for helping to save Hetch Hetchy. Glad you like the Sierra Club summer book. I'll get the publishers to send some. Remember me to Mrs. Colby and Parsons and your brave pair

of young mountaineers. Good luck for your outing. Greet them all at your camp-fire with my warmest good wishes."

Para, Brazil, Sept. 19, 1911: "I hope you all had a good time this summer, the usual Sierra Club luck. When I left New York August 12th, the Hetch Hetchy looked comparatively safe as far as I could see, but the wicked, whether down or up, are never to be trusted, so we must keep on watching, praying, fighting, overcoming evil with good as we are able.

"I've had a glorious time up the Amazon. In about a week from above date, I hope to be on my way to Rio de Janeiro. Thence I intend going to Buenos Aires, sail up the Uruguay and La Plata, cross the Andes to Valparaiso and southward along the araucarian forests, etc. Then perhaps to South Africa to see its wonderful flora, etc.; may be home in the spring.

"My kindest regards to Mrs. Colby and the great pair of boys and to the Parsons, and all the Club you see."

On the Steamer "Windkirk," near Zanzibar, Feb. 4, 1912: "I've had a great time in South America and South Africa. Indeed it now seems that on this pair of wild, hot continents I've enjoyed the most fruitful year of my life. Some happy California day I'll try to tell you about it. I'm now on my way from Beira to Mombasa after a grand trip to the Zambesi *Baobab* forests, Victoria Falls, and the magnificent glacial rock scenery of Southern Rhodesia. From Mombasa I intend to make a short trip into the Nyanza lake region, then home via Suez, Naples and New York, hoping to find you and all the Sierra Club and its friends and affairs hale and happy and prosperous."

Martinez, May 1, 1912: "I'll be down Friday and stop over for the Saturday meeting. If a few of the Club members wish very much to give me an informal dinner I'll not object, but my dress suit is in Los Angeles; have nothing but old clothes here, therefore the thing must be an informal sort of camp affair."

Hollywood, Cal., June 24, 1912: "I thank you very much for your kind wishes to give me a pleasant Kern River trip, and am very sorry that work has been so unmercifully piled upon me that I find it impossible to escape from it, so I must just stay and work.

"I heartily congratulate you and all your merry mountaineers in the magnificent trip that lies before you. As you know,

I have seen something of nearly all the mountain chains in the world, and have experienced their varied climates and attractions of forests and rivers, lakes and meadows, etc. In fact, I have seen a little of all the high places and low places of the continents, but no mountain range seems to me so kind, so beautiful, or so fine in its sculpture as the Sierra Nevada. If you were as free as the winds are, and the light, to choose a camp ground in any part of the globe, I could not direct you to a single place for your outing that, all things considered, is so attractive, so exhilarating and uplifting in every way as just the trip that you are now making. You are far happier than you know. Good luck to you all, and I shall hope to see you all on your return, boys and girls, with the sparkle and exhilaration of the mountains still in your eyes. With love and countless fondly cherished memories, Ever faithfully yours,

JOHN MUIR."

"Of course in all your camp-fire preaching and praying you will never forget Hetch Hetchy."

JOHN MUIR · MASTER OF ARTS · HARVARD UNIVERSITY

· JOHANNEM MVIR ·
LOCORVM INCOGNITORVM
EXPLORATOREM INSIGNEM · FLVMINVM
QVI SVNT IN ALASKA
SERRATISQVE MONTIBVS CONGLACIATORVM
STVDIOSVM · DILIGENTEM SILVARVM
ET RERAM AGRESTIVM
FERARAMQVE INDAGATORVM
ARTIVM MAGISTRVM

CAMBRIDGE · MASSACHUSETTS
JUNE 24 · A · D · 1896

CHARLES WILLIAM ELIOT
PRESIDENT

JOHN MUIR

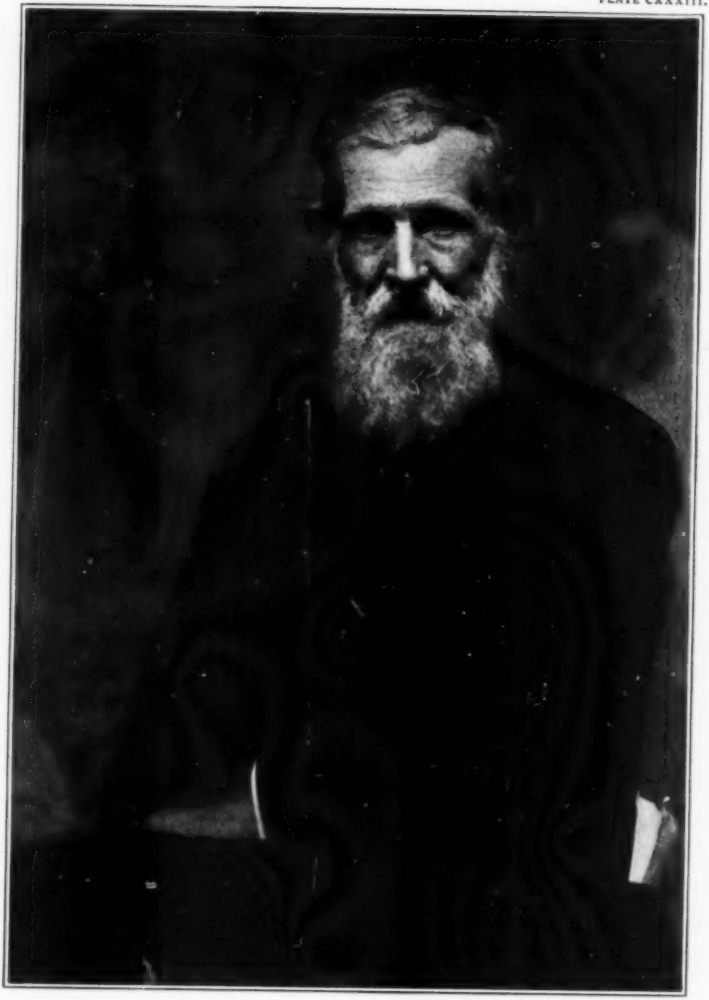
By David Starr Jordan

It is not easy to write of my good friend, John Muir. The impression of his personality was so strong on those who knew him that all words seem cheap beside it. Those who never knew him can never, through any word of ours, be brought to realize what they have missed.

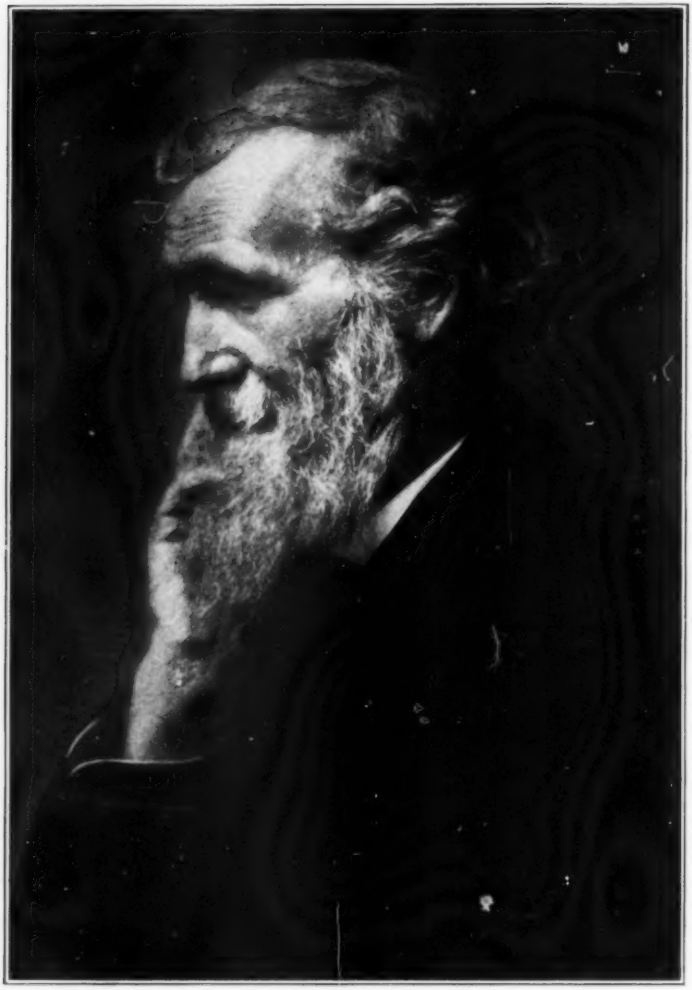
John Muir first came to my notice in Indianapolis, forty years ago, but he was gone before I came there. He was a printer, I believe, in those days, and he made friends, for he was rich in wisdom and in love of nature. Five years later, in San Francisco, I met him frequently. He was lately back from the Yosemite, where, in rollicking enthusiasm, he had written the finest bird biography in existence, the story of the Water Ouzel in the "Ouzel Basin" of the Brewer range.

In those days every meeting with him was a fresh joy. He was possessed with love and the enthusiasm for a fresh great mountain range, almost new to literature in those days, but fit to dominate it when the Alps and the Apennines have vanished, swallowed up in the sea of blood. He had, moreover, a quaint, crisp way of talking, his literary style in fact, and none of the nature lovers, the men who know how to feel in the presence of great things and beautiful, have expressed their craft better than he.

There is another Scotsman of the cosmopolitan order to whom, in many ways, John Muir bore a strong resemblance. John Muir cared little for world-politics, and James Bryce knew little of the songs of birds, but these two great men looked on life and the universe in much the same way, both frank-spoken and absolutely democratic; both open-eyed to all phenomena of the world, whatever and wheresoever they be; both wandering wide from their homes; both large-brained, cosmopolitan citizens of the world, the world God made and which lies open to us all the time.



JOHN MUIR
Photo by W. E. Dassonville



JOHN MUIR
Photo by W. E. Dassonville

JOHN MUIR AS I KNEW HIM*

By Robert Underwood Johnson

Sometime, in the evolution of America, we shall throw off the two shackles that retard our progress as an artistic nation—philistinism and commercialism—and advance with freedom toward the love of beauty as a principle. Then it will not be enough that one shall love merely one kind of beauty, each worker his own art, or that art shall be separated from life as something too precious for use; men will search for beauty as scientists search for truth, knowing that while truth can make one free, it is beauty of some sort, as addressed to the eye, the ear, the mind, or the moral sense, that alone can give permanent happiness. When that apocalyptic day shall come, the world will look back to the time we live in and remember the voice of one crying in the wilderness and bless the name of John Muir. To some, beauty seems but an accident of creation: to Muir it was the very smile of God. He sung the glory of nature like another Psalmist, and, as a true artist, was unashamed of his emotions.

An instance of this is told of him as he stood with an acquaintance at one of the great view-points of the Yosemite Valley, and, filled with wonder and devotion, wept. His companion, more stolid than most, could not understand his feeling, and was so thoughtless as to say so. "Mon," said Muir, with the Scotch dialect into which he often lapsed, "Can ye see unmoved the glory of the Almighty?" "Oh, it's very fine," was the reply, "but I do not wear my heart upon my sleeve." "Ah, my dear mon," said Muir, "in the face of such a scene as this, it's no time to be thinkin' o' where you wear your heart."

No astronomer was ever more devout. The love of nature was his religion, but it was not without a personal God, whom he thought as great in the decoration of a flower as in the launching of a glacier. The old Scotch training persisted

* Read, in part, at the meeting of the American Academy of Arts and Letters, in New York, January 6, 1916.

through all his studies of causation, and the keynote of his philosophy was intelligent and benevolent design. His wonder grew with his wisdom. Writing for the first time to a young friend, he expressed the hope that she would "find that going to the mountains is going home, and that Christ's Sermon on the Mount is on every mount."

It was late in May, 1889, that I first met him. I had gone to San Francisco to organize the series of papers afterward published in the *Century Magazine* under the title of "The Gold-hunters of California," and promptly upon my arrival he came to see me. It was at the Palace Hotel in San Francisco. I was dressing for dinner and was obliged to ask him to come up to my room. He was a long time in doing so and I feared he had lost his way. I can remember, as if it were yesterday, hearing him call down the corridor, "Johnson, Johnson! where are you? I can't get the hang of these artificial cañons," and before he had made any of the conventional greetings or inquiries, he added: "Up in the Sierra, all along the gorges, the glaciers have put up natural sign-posts, and you can't miss your way, but here—there's nothing to tell you where to go."

With all his Scotch wit and his democratic feeling, Muir bore himself with dignity in every company. He readily adjusted himself to any environment. In the High Sierra he was indeed a voice crying in the wilderness: moreover, he looked like John the Baptist as portrayed in bronze by Donatello and others of the Renaissance sculptors—spare of frame, hardy, keen of eye and visage, and on the march eager of movement. It was difficult for an untrained walker to keep up with him as he leaped from rock to rock as surely as a mountain goat, or skimmed the surface of the ground, a trick of easy locomotion learned from the Indians. If he ever became tired nobody knew it, and yet, though he delighted in badinage at the expense of the "tenderfoot," he was as sympathetic as a mother. I remember a scramble we had in the upper Tuolumne Cañon which afforded him great fun at my expense. The detritus of the wall of the gorge lay in a confused mass of rocks, varying in size from a market basket to a dwelling house, the interstices overgrown with a most deceptive shrub, the soft leaves of which concealed its iron trunk and branches. Across such a Dantean formation Muir

went with certainty and alertness, while I fell and floundered like a bad swimmer, so that he had to give me many a helpful hand and cheering word, and when at last I was obliged to rest, Muir, before going on for an hour's exploration, sought out for me one of the most beautiful spots I had ever seen, where the rushing river, striking pot-holes in its granite bed, was thrown up into water wheels twenty feet high. When he returned to camp he showered me with little attentions and tucked me into my blankets with the tenderness that he gave to children and animals.

Another Scotch trait was his surface antipathies. He did not hate anything—not even his antagonists, the tree vandals—but spoke of those "misguided worldlings" in terms of pity; yet he had a wholesome contempt for the contemptible. His growl—he never had a bark—was worse than his bite. His pity was often expressed for the blindness of those who through unenlightened selfishness chose the lower utility of nature in place of the higher.

Many have praised the pleasures of solitude—few have known them as Muir knew them, roaming the High Sierra week after week with only bread and tea and sometimes berries for his sustenance, which he would have said were a satisfactory substitute for the "locusts and wild honey" of his prototype. His trips to Alaska were even more solitary and we should say forbidding —but not he, for no weather, no condition of wildness, no absence of animal life could make him lonely. He was a pioneer of nature, but also a pioneer of truth, and he needed no comrade. Many will recall his thrilling adventure on the Muir glacier, told in his story entitled *Stickeen,* named for his companion, the missionary's dog. I heard him tell it a dozen times—how the explorer and the little mongrel were caught on a peninsula of the glacier—and how they escaped. It is one of the finest studies of dogliness in all literature, and told in Muir's whimsical way, betrayed unconsciously the tenderness of his heart. Though never lonely, he was not at all a professional recluse: he loved companions and craved good talk, and was glad to have others with him on his tramps, but it was rare to find congenial friends who cared for the adventures in which he reveled. He was hungry for sympathy and found it in the visitors

whom he piloted about and above the Yosemite Valley—Emerson, Sir Joseph Hooker, Torrey, and many others of an older day or of late years, including presidents Roosevelt and Taft.

Muir was clever at story-telling, and put into it both wit and sympathy, never failing to give, as a background, more delightful information about the mountains than a professor of geology would put into a chapter. With his one good eye—for the sight of the other had been impaired in his college days in Wisconsin by the stroke of a needle—he saw every scene, in detail and in mass. This his conversation visualized until his imagination kindled the imagination of his hearer.

Adventures are to the adventurous. Muir, never reckless, was fortunate in seeing nature in many a wonderful mood and aspect. Who that has read them can forget his wonderful descriptions of the windstorm in the Yuba which he outrode in a treetop, or of the avalanche in the Yosemite, or of the spring floods pouring in hundreds of streams over the rim of the Valley? And what unrecorded adventures he must have had as pioneer of peak and glacier in his study of the animal and vegetable life of the Sierra. Did any observer ever come nearer than he to recording the soul of Nature? If "good-will makes intelligence," as Emerson avers, Muir's love of his mountains amounted to divination. What others learned laboriously, he seemed to reach by instinct, and yet he was painstaking in the extreme and jealous of the correctness of both his facts and his conclusions, defending them as a beast defends her young. In the Arctic, in the great forests of Asia, on the Amazon and in Africa at seventy-three, wherever he was, he incurred peril, not for "the game," but for some great emprise of science.

But Muir's public services were not merely scientific and literary. His countrymen owe him gratitude as the pioneer of our system of national parks. Before 1889 we had but one of any importance—the Yellowstone. Out of the fight which he led for the better care of the Yosemite by the State of California grew the demand for the extension of the system. To this many persons and organizations contributed, but Muir's writings and enthusiasm were the chief forces that inspired the movement. All the other torches were lighted from his. His disinterestedness was too obvious not to be recognized even by opponents. To a

friend who in 1906 made an inquiry about a mine in California he wrote: "I don't know anything about the X—— mine or any other. Nor do I know any mine owners. All this $ geology is out of my line." It was in his name that the appeal was made for the creation of the Yosemite National Park in 1890, and for six years he was the leader of the movement for the retrocession by California of the Valley reservation, to be merged in the surrounding park, a result which, by the timely aid of Edward H. Harriman, was accomplished in 1905.

In 1896-7, when the Forestry Commission of the National Academy of Sciences, under the chairmanship of Professor Charles S. Sargent, of Harvard, was making investigations to determine what further reservations ought to be made in the form of national parks, Muir accompanied it over much of its route through the far west and the northwest, and gave it his assistance and counsel. March 27, 1899, he wrote: "I've spent most of the winter on forest protection—at least I've done little beside writing about it." From its inception to its lamentable success in December, 1913, he fought every step of the scheme to grant to San Francisco for a water reservoir the famous Hetch Hetchy Valley, part of the Yosemite National Park, which, as I have said, had been created largely through his instrumentality. In the last stages of the campaign his time was almost exclusively occupied with this contest. He opposed the project as unnecessary, as objectionable intrinsically, and as a dangerous precedent, and he was greatly cast down when it became a law. But he was also relieved. Writing to a friend, he said: "I'm glad the fight for the Tuolumne Yosemite is finished. It has lasted twelve years. Some compensating good must surely come from so great a loss. With the New Year comes new work. I am now writing on Alaska. A fine change from faithless politics to crystal ice and snow." It is also to his credit that he first made known to the world the wonder and glory of the Big Trees; those that have been rescued from the saw of the sordid lumbermen owe their salvation primarily to his voice.

Muir's death, on Christmas Eve of 1914, though it occurred at the ripe age of seventy-six and though it closed a life of distinguished achievement, was yet untimely, for his work was by no means finished. For years I had been imploring him to

devote himself to the completion of his record. The material for many contemplated volumes exists in his numerous notebooks, and though, I believe, these notes were to a great degree written *in extenso* rather than scrappily, and thus contain much available literary treasure, yet where is the one that could give them the roundness of presentation and the charm of style which are found in Muir's best literary work? One almost hesitates to use the word "great" of one who has just passed away, but I believe that history will give a very high place to the indomitable explorer who discovered the great glacier named for him, and whose life for eleven years in the High Sierra resulted in a body of writing of marked excellence, combining accurate and carefully co-ordinated scientific observation with poetic sensibility and expression. His chief books, *The Mountains of California, Our National Parks* and *The Yosemite,* are both delightful and convincing, and should be made supplemental reading for schools. When he rhapsodizes it is because his subject calls for rhapsody, and not to cover up thinness of texture in his material. He is likely to remain the one historian of the Sierra; he imported into his view the imagination of the poet and the reverence of the worshiper.

Muir was not without wide and affectionate regard in his own state, but California was too near to him to appreciate fully his greatness as a prophet, or the service he did in trying to recall her to the gospel of beauty. She has, however, done him and herself honor in providing for a path in the High Sierra, from the Yosemite to Mount Whitney, to be called the John Muir trail. William Kent, during Muir's life, paid him a rare tribute in giving to the nation a park of redwoods with the understanding that it should be named Muir Woods. But the nation owes him more. His work was not sectional but for the whole people, for he was the real father of the forest reservations of America. The National Government should create from the great wild Sierra forest reserve a national park, to include the Kings River Cañon, to be called by his name. This recognition would be, so to speak, an overt act, the naming of the Muir Glacier being automatic by his very discovery of it. It is most appropriate

and fitting that a wild Sierra region should be named for him. There has been but one John Muir.

The best monument to him, however, would be a successful movement, even at this late day, to save the Hetch Hetchy Valley from appropriation for commercial purposes. His death was hastened by his grief at this unbelievable calamity and I should be recreant to his memory if I did not call special attention to his crowning public service in endeavoring to prevent the disaster. The Government owes him penance at his tomb.

In conclusion, John Muir was not a "dreamer", but a practical man, a faithful citizen, a scientific observer, a writer of enduring power, with vision, poetry, courage in a contest, a heart of gold, and a spirit pure and fine.

THE BURIAL OF JOHN MUIR

By Charlotte Hoffman Kellogg

With thee, man-heart, where dawns on glaciers play
  We went; by thy child-heart with joy were fed;
  And by thy poet-heart to prayer were led.
Still following, we cross thy fields today,
Beside the stream, beneath the yew and bay;
  Lower thy body to its chosen bed.
  Quail call—tree-shadows creep toward thy dear head
As in green boughs we wrap thee for alway.

Now holy memories still our questioning—
  Thou know'st not their despair whose reason would
Leap with the spirit the blind brink of Time;
  Here thus to seal eternal brotherhood
With sun and lily, where the foam-bells ring,
  For thee is immortality sublime.

RECOLLECTIONS OF JOHN MUIR

By Charles Keeler

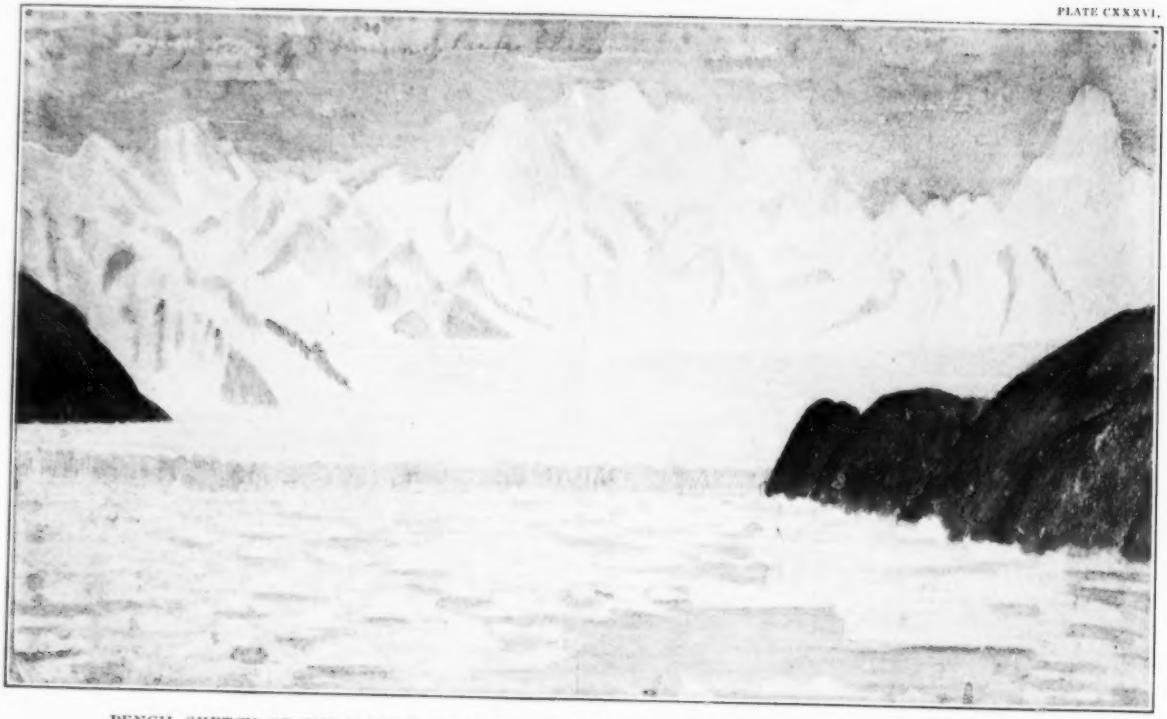
My earliest recollections of John Muir date back some twenty-odd years, to those golden days in William Keith's rather dingy but glorious studio on Montgomery Street, when Muir would drop in from his Martinez retreat for a chat with his old painter friend. The two Scotchmen, who had camped together in Sierra wilds in summer outings, and cracked jokes at one another's expense in the studio or at one of the little French restaurants where they lunched during winter visits, were big elemental natures, both of them. The child-heart each had treasured in his own peculiar way. They were Willie and Johnnie in their bantering sallies.

Both were deeply religious natures, but emancipated from formalism and tradition. Both were students and lovers of nature, but where Keith saw color and atmosphere, poetry and romance, in mountain and vale, tree and sky, Muir's eyes were fixed on the ever-changing processes of immutable law.

Those who knew Keith's work best realized that it fell into two groups—a comparatively hard, literal portrayal of the facts of landscape, and a free, impassioned outburst of impressionistic depicting of nature's moods. In his own heart he scorned the former and frankly gloried in the latter. His naturalistic sketches in color were either studies of underlying fact or potboilers for the uninitiated who were not up to his dream rhapsodies.

Muir was at heart a seer. But for him the wonder and glory of nature lay not in its romance of atmosphere and its appeal to human emotions. He saw in it rather the embodiment of divine law, and in a picture looked for a naturalistic portrayal rather than an impressionistic interpretation. So it was that he failed to appreciate his artist friend's finest work. With his dry Scotch humor he loved to twit him in good-natured raillery. Both in the old Montgomery Street studio, and later in the larger Pine Street rooms, I have spent many a happy hour with

CHARLES KEELER, JOHN MUIR, WILLIAM KEITH, FRANCIS FISHER BROWNE
AND JOHN BURROUGHS



PENCIL SKETCH OF THE PACIFIC GLACIER, IN GLACIER BAY, FROM JOHN MUIR'S ALASKA NOTEBOOKS

these two great souls, looking at the pictures and listening to Muir's talk.

As his keen gray eye ranged over the pictures stacked in piles all over the place, he would fall upon a big careful objective study of a Sierra landscape.

"Now there's a real picture, Willie," he would exclaim. "Why don't you paint more like that?"

With a look of defiance the big shaggy-haired painter would draw from the stack a mystical dream of live-oaks, with a green and gold sunset sky, and stand it up on an easel with an impatient wave of his hand.

"What are you trying to make of that? You've stood it upside down, haven't you?" Muir would sally with a mischievous twinkle.

And Keith would finally give it up with:

"There's no use trying to show you pictures, Johnnie."

But in spite of these little pleasantries, which revealed a fundamentally different approach to nature, the two men had a life-long admiration and friendship for one another.

Never have I met another man of such singleness of mind in his devotion to nature as Muir. He lived and moved and had his being as a devotee. He was naturally a recluse, but if he could get a listener, whether of high or low degree, he would talk by the hour of his beloved mistress. It was the passion of his life, the awakening of the dull and circumscribed soul of the average man or woman to the ineffable splendor of the great out-of-doors.

During the memorable two months of the Harriman Expedition to Alaska, Muir and I were room-mates. He had the tender kindliness of a father. Of himself he took little heed, but no zealous missionary ever went abroad to spread the gospel with his fervor in communicating a love of nature. And with him a love of nature meant an understanding of her laws. He has told me that he found it necessary, in getting people to listen, to tell them stories such as his immortal tale of Stickeen, but the real hope in his heart was to awaken their interest so they would want to go to nature themselves and to delve into the mysteries of her ways.

Our stateroom was filled with "brush"—pine and spruce

PENCIL SKETCH OF THE PACIFIC GLACIER, IN GLACIER BAY, FROM JOHN MUIR'S ALASKA NOTEBOOKS

boughs, with cones or blossoms, and other trophies gathered on shore rambles. "Look at that little muggins of a fir cone," he would say to me, lovingly stroking the latest accession with which he littered the room, to the despair of the steward who tried to keep it in order.

That other great child-soul of nature, John Burroughs, was with us in Alaska, and the coming together of these two men was an event in American life. Burroughs is naively human, Muir intensely aloof. But Muir's aloofness was never cold or hard. It was the result of his almost fanatical absorption in the thrilling play of nature.

We dubbed him "Ice Chief" in Alaska, because of his enthusiasm for the great ice sculptor of the Glacial Age who had carved out the mountains in their present form. In those far northern wilds he was in his element, for with glaciers thundering their bergs into the inlets and sweeping majestically down through rugged mountain defiles, it was easy for him to show how all the carving of the mountains of the West was the work of their Titan graving tools. He would not hear of earthquake faults as a factor even in the shaping of the Yosemite. It was all the work of the ice, although he had himself witnessed a great avalanche there as the result of an earthquake, and loved to tell about rushing up on the great mass of granite when the blocks were still hot from crashing down the mountain.

To have explored with Muir the great glacier which bears his name, to have wandered with him in the Yosemite and Kings River Cañon, is to have come, through his enthusiasm and vision, a little nearer the hidden mysteries of nature. Every tree and flower, every bird and stone was to him the outward token of an invisible world in process of making. He sauntered over the mountains in his blue jeans overalls, claiming kinship with the rocks and growing things and gathering them all to his heart.

Nor can I forget the simple kindly welcome at his Martinez home, the strolls about his broad acres of fruit and vine, and the evening talks, prolonged far into the night, in his study, littered with the trophies of a life-time of communion with the great out-doors in many lands. In the autumn, boxes of grapes

would come to prove that Muir was not so absorbed in his studies as to forget his friends, and on his visits to Berkeley, shining gold pieces would be slipped almost shyly into the children's hands.

Here was a real man, one who would get lost on the city streets, but could find his way through any unmapped wilderness; one who had the outward bearing of an unsophisticated farmer but was at home with the most polished man of the world. Devoid of all shams and affectations, sincere to the very roots of his being, his deadly earnestness was saved by that touch of Scotch humor and that deep tenderness and sympathy which shone through his being despite the habitual absorption in impersonal matters. And that Muir was able to fight, those who know with what zeal and single-minded devotion to a cause he carried on his campaign to save the Hetch Hetchy Valley, can testify. Recluse and devotee of nature though he was, he could come out among men and with unflinching courage, untiring energy and rare practical sense, work to save his beloved trees and mountains from being despoiled.

Others may praise him for his keen eye, his grasp of nature's laws, his enthusiasm as an explorer, his grace and charm of literary style, but for me he was a personality that defies analysis—a great soul, a genuine friend, and I am grateful to share, with all who touched his life closely, in the consciousness that we are better and closer to the great primal things because we knew and loved him.

MUIR OF THE MOUNTAINS

By Alexander McAdie

A scientific friend* recently sent me some measurements of the displacement of earth particles at Ottawa caused by a mountain slide in the Pamir. Seismographs in the Dominion Observatory (and elsewhere) had faithfully recorded the train of earth waves started by the trembling range ten thousand miles away. Moreover it was possible to determine the mass, momentum and energy involved in this fall of a mountain. John Muir would have been interested in these measurements made at a distance, but undoubtedly would have been far more interested in a description of the fall itself, and would have cheerfully started at a moment's notice for Afghanistan or the uttermost part of the earth if assured that another gigantic slide were imminent. Entirely regardless of comfort or personal security he would have watched the mountain fall, exulting in the rare privilege of thus viewing at close range the making and unmaking of the "eternal" hills. We would have had a description, both accurate and eloquent, for he would have written into it not only what the eye beheld, but much that other men must have failed to note, because they failed to feel. His nature was keenly sensitive to the significance of motion in inanimate things. One recalls his story of the earthquake in the Yosemite. "A *noble* earthquake," he cried, as he ran from his tent in the early morning to get a better view of what was happening in the Valley. This was the famous Inyo earthquake of March 26, 1872, about 2:30 a. m., with aftershocks until 6:30 a. m.; and probably the greatest seismic disturbance that has occurred in the United States for two centuries. It was quite severe in the whole Sierra zone, and of course to those who were in the Yosemite at the time was a most terrifying experience. Mr. Muir often described the scene to the writer and fellow members of the Sierra Club. It is plain that after the first two or

* Dr. Otto Klotz, the Dominion Astronomer.

three seconds of doubt and trepidation, Muir realized what was happening and enthusiastically welcomed such an opportunity for close observation of the swaying trees, and the piling up of the talus by the torrent of rocks from the cliffs, forming a luminous bow as they fell. His intense interest and forgetfulness of self were not assumed, but the natural expression of a spirit all eager to observe and interpret, if he could, the shaking earth and allied phenomena. He was probably the one man in the Valley who kept his head while these unnerving events were in progress.

He had many stirring adventures while climbing and roaming. One in particular was in later years somewhat joculary referred to as "a personally conducted ride on an avalanche," although at the time it was anything but a jocular matter. Here again Muir showed remarkable presence of mind. And how he exulted in the mountain storms! Nothing of their majesty and might escaped his notice. He knew them well, from the towering cumulo-nimbus, whose slow upbuilding foretold the coming thunder, to the wild rush and wrestling of the blast with the forest monarchs. Sprung from a long line of Highland forebears, he scanned with critical eye the gray low-flying scud and the fast falling flakes that blotted out the landscape and bewildered men. To Muir these were never-to-be-forgotten and ever-to-be-enjoyed manifestations of Nature's might and her thousand ways of casting forth her strength.

Or turning from scenes of elemental strife to those of elemental calm, we can picture him keeping lonely vigil on the summit of Whitney. Wandering as night fails, near the crest of the range, the solitary figure looms large against the sky-line. Out of the world, yet in it; no human hand within touching distance, no human habitation within a day's march; serene and self-poised, like one of the prophets of old he strays from men. And as the sun passes below the farther peaks, and darkness broods o'er the vast stretch of earth, he holds communion with the friendly stars, nor knows nor feels his loneliness.

Of all the mountains he had visited, and he had climbed many in all parts of the world, his heart ever turned to and yearned most for the Sierra, or, as he called them, the Mountains of Light. They were his constant inspiration, and all their varying

moods he knew and loved. Loitering through the meadows or scaling the heights, Muir was here at home and at his best. Not infrequently he was called upon to act as guide, interpreter and host to those who came from afar. For all such he mixed with the independence of a mountaineer a true Highland hospitality. It was delightful to hear him tell of Emerson's visit, all too brief, or the later, longer outing of an intrepid former president, who insisted on having Muir for his escort and Muir only. Both saw to it that the trivialities of city life were left behind and forgotten. There was no room for artificialities in the friendly mountains. Rather the long day's tramp, the inspiring views, the refreshment of the mountain stream, the growing appetite, the simple meal, the quiet mind, the pine-bough bed and restful sleep beside the camp-fire, that, flickering, threw into bolder relief the sentinel Sequoia.

Muir was the keenest of observers and no mean scientist; but it was his power of expression and gift of interpretation that made him known among men. He was able to convey to others a full measure of his own enthusiasm, and kindle in them an unquenchable longing for out-of-door life, and golden, glorious days and nights in Nature's own playground, the mountains. This was Muir's mission and at it he wrought diligently. His influence was not confined to one city or one State. It is indeed a question if this was not greater in distant lands than in the State and section where he dwelt and which he loved so well.

When a mountain falls and jars the planet's crust, the earth waves spread in all directions with ever widening circles but ever diminishing energy. When a great man passes from the sunlit way, human interest is stirred in many lands, but there is no lessening of appreciation and sympathy with increasing distance. Thus it is with Muir. He stood as a great advocate for the preservation of the wild and the beautiful; he gave the best that was in him to the service of men; he strove earnestly to turn their thoughts from the daily routine, with its unrest and turmoil, to the peace and beauty of the hills.

His eloquent sentences will remain as long as our mother tongue endures; his pleadings will not lose their force, and his influence can but spread and strengthen as the years pass.

JOHN MUIR

By Robert B. Marshall

I have put my brain to the test to find if it could choose words expressive of the grand old man Muir. It does not respond at all fittingly. My appreciation, feelings, respect and love for my friend Muir are all of the heart, and so intense and sacred that I cannot tell them even to my friends. Most of us have suffered the loss of those dear to us, and each one who has so suffered surely appreciates the force of my reluctance in attempting to put down in words my soul's sorrow in the loss of a friend so big, so powerful—and yet he was the plainest and simplest person I ever knew. His simplicity was his power. He knew nature as no one else did, and with his God, he worshipped it. It was so much a part of him that the little children could understand him and knew what he said, and loved him even more than the older children, such as we all became in his presence.

His affection for the commonplace little pine-needle was as genuine as that for the most beautiful flower or the grandest tree, and the little flakes of snow and the little crumbs of granite were each to him real life, and each had a personality worthy of his wonderful mind's attention; and he talked and wrote of them as he did of the ouzel or the Douglas squirrel—made real persons of them, and they talked and lived with him and were a part of his life as is our own flesh and blood.

I knew Mr. Muir long and intimately, and each day I learned something new and beautiful of life and of his wonderful mind. He did not enjoy answering questions, and in fact it was rarely necessary to ask one. Only allow him to be with a person for a short time and some sort of conversation would start; then by sheer force of intellect his mind would take the lead and his companion would drink in the purest of English, charmingly phrased, until soon a sermon of life was given that would remain one of the most wonderful experiences of a lifetime.

I cannot write a line worthy of the man we wish to honor.

One cannot describe Mount Rainier, one cannot describe the Grand Canyon, one cannot describe his beloved Yosemite: humanity is silent in their presence. So it was with John Muir to all who knew him; so has his influence affected mankind, and so will his life and work impress generations to come. This most wonderful of men, lifted above death and time by his human sympathy no less than by his genius, will forever influence the world, and it will be the better for his example and his inspiration.

JOHN MUIR · DOCTOR OF LAWS · UNIVERSITY OF CALIFORNIA

· JOHN MUIR ·
BORN IN SCOTLAND · REARED IN THE
UNIVERSITY OF WISCONSIN · BY FINAL CHOICE
A CALIFORNIAN · WIDELY TRAVELED
OBSERVER OF THE WORLD WE DWELL IN
MAN OF SCIENCE AND OF LETTERS
FRIEND AND PROTECTOR OF NATURE
UNIQUELY GIFTED TO
INTERPRET UNTO OTHER MEN
HER MIND AND WAYS

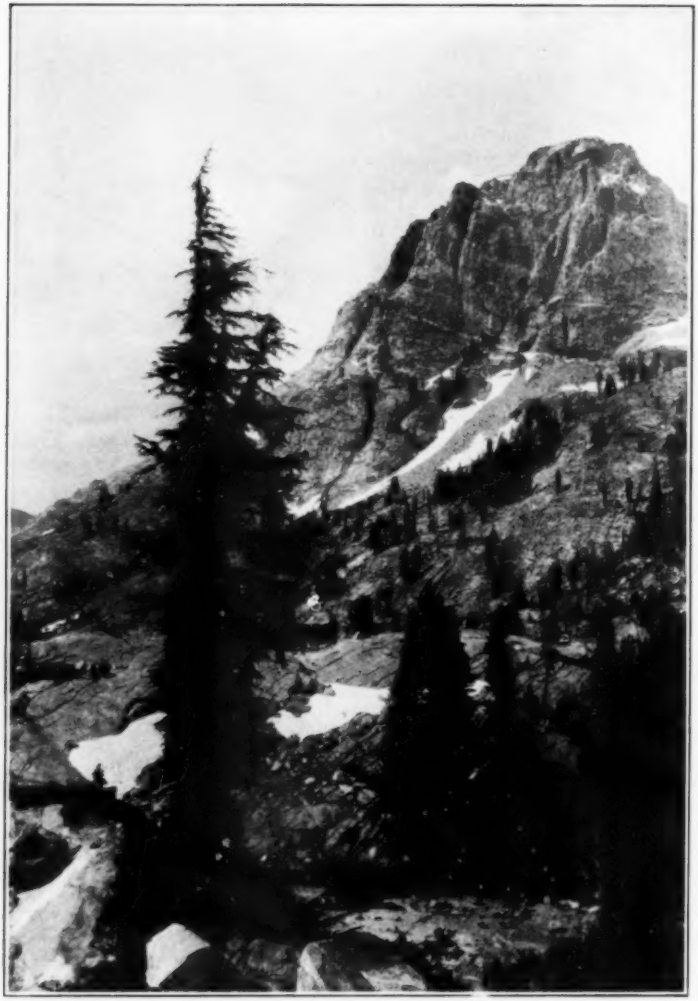
BERKELEY · CALIFORNIA
MAY 14 · A · D · 1913

BENJAMIN IDE WHEELER
PRESIDENT

FOREST OF MAGNIFICENT SILVER FIRS

"Fine sauntering grounds at almost any time of year, but finest in autumn when . . . the flying, whirling seeds, escaping from the ripe cones, mottle the air like flocks of butterflies."—*The Yosemite*

Photo by Geo. R. King



YOUNG MOUNTAIN HEMLOCK

"No other of our alpine conifers as finely veils its strength; poised in thin white sunshine . . . loving the ground, conscious of heaven and joyously receptive of its blessings."—*The Yosemite*

Photo by Herbert W. Gleason

JOHN MUIR

By Enos Mills

In December, 1914, John Muir vanished into that mysterious realm into which all trails inevitably lead. He rendered mankind a vast and heroic service. His triumphs were the very greatest. They were made in times of peace for the eternal cause of peace. We are yet too close to the deeds of this magnificent man to comprehend the helpfulness of his work to humanity. His books and his work are likely to be the most influential force in this century. The twentieth century promises to be for mankind the beautiful century of scenery.

The grandest character in national park history and in nature literature is John Muir. He has written the great drama of the outdoors. On Nature's scenic stage he gave the wild life local habitation and character—did with the wild folk what Shakespeare did with man. He puts the woods in story, and in his story you are in the wilderness. His prose poems illuminate the forest, the storm, and all the fields of life. He has set Pan's melody to words. He sings of sun-tipped peaks and gloomy cañons, flowery fields and wooded wilds. He has immortalized the Big Trees. His memory is destined to be ever with the silent places, with the bird songs, with wild flowers, with the great glaciers, with snowy peaks, with dark forests, with white cascades that leap in glory, with sunlight and shadow, with the splendid national parks, and with every song that Nature sings in the wild gardens of the world.

AN APPRECIATION

By Harriet Monroe

I was fortunate enough to take two Sierra Club outings when John Muir was of the company during the whole four weeks—the first in 1908, through the Kern, and again the next year in the Yosemite. He talked often at the camp-fires, giving generously of his knowledge and love of nature, as everyone knows. But he talked also to smaller groups, and even to any chance companion on the trail, and it is some of these casual hours of happy intercourse which I remember most vividly.

One day, at the Big Arroyo camp, it was butterflies, for some youth was trying to take a picture of one as it poised on a flower. I was struck with the old man's tenderness for these exquisite fairies of the forest, and with the depth and breadth of his knowledge. This was a rare spirit; never had I encountered such delicacy of sympathy with little fluttering, flitting lives. Again, in some high place, it was of a certain species of little bird he talked—I have forgotten their name—a Latin one, for they live incredibly high, beyond the reach of the vulgar tongue—and his voice softened as he described the valor of their daily life.

But it was on two occasions in the Yosemite that John Muir gave me perhaps the richest of my mountain days. And each day took form in a poem, which I shall probably quote on the trail as we pass. One morning we were climbing out of the Valley by way of Vernal and Nevada Falls. I was a poor climber, always the last on the trail, and Nevada, the dancer, held me back with her beauty. When at last I reached the level granite above her, John Muir was there, mounted on the horse which he rode now and then when no woman would accept the loan of it. He was rapt, entranced; he threw up his arm in a grand gesture. "This is the morning of creation," he cried, "the whole thing is beginning now! The mountains are singing together"—ah, I can not remember his dithyrambic pæan of praise, which flowed on as grandly as the great white waters

beside us. Four days later I made of it this poem, which offers something of what he said, though his free biblical rhythms feel somewhat cramped in my rhymes, and it was I who dragged the human beings in:

It is creation's morning—
  Freshly the rivers run.
The cliffs, white brows adorning,
  Sing to the shining sun.

The forest, plumed and crested,
  Scales the steep granite wall.
The ranged peaks, glacier-breasted,
  March to the festival.

The mountains dance together,
  Lifting their domed heads high.
The cataract's foamy feather
  Flaunts in the streaming sky.

Somewhere a babe is borning,
  Somewhere a maid is won.
It is creation's morning—
  Now is the world begun.

A few days later we took the "long, long hike," as my diary records it, from Lake Merced to Tuolumne Meadows. Before many hours I met John Muir, who insisted on my riding his horse most of the time; and so it was in his company that I crossed the wet snows and slushy waters of Vogelsang Pass. He introduced me to that lady of the snows, the mountain hemlock, who was just then lifting her head from under the white weight of winter, and spreading her trailing garments in the sun. He told me how she pushed out of the rock and grew, how she bowed to the wind and gently resisted the storm; how she bent under mountain-loads of ice each year, and rose again to the beauty of the sun for a brief summer of joy. He described her moods, revealed her graces—gave me her individuality, her character, until I felt something of his love and intimacy. "You

poet, write about that!" he commanded, and so once more—a few days later—I tried to catch the beauty of the moment:

The mountain hemlock droops her lacy branches
  Oh, so tenderly
    In the summer sun!
Yet she has power to baffle avalanches—
  She, rising slenderly
    Where the rivers run.

So pliant yet so powerful! Oh, see her
  Spread alluringly
    Her thin sea-green dress!
Now from white winter's thrall the sun would free her
  To bloom unenduringly
    In his glad caress.

I wonder sometimes if there was ever such another *lover* of nature as John Muir. Never at least for me! He really loved every littlest thing that grows; studied the mole, the beetle, the lily, with complete and perfect sympathy. And for his glorious commanding love nothing was too sublime—not the sequoia, the cataract, the blizzard in the mountains.

JOHN MUIR

By Henry Fairfield Osborn

I believe that John Muir's name is destined to be immortal through his writings on mountains, forests, rivers, meadows, and the sentiment of the animal and plant life they contain. I do not believe anyone else has ever lived with just the same sentiment toward trees and flowers and the works of nature in general as that which John Muir manifested in his life, his conversations and his writings.

In the splendid journey which I had the privilege of taking with him to Alaska in 1896 I first became aware of his passionate love of nature in all its forms and his reverence for it as the direct handiwork of the Creator. He retained from his early religious training under his father this belief, which is so strongly expressed in the Old Testament, that all the works of nature are directly the work of God. In this sense I have never known anyone whose nature philosophy was more thoroughly theistic; at the same time he was a thorough-going evolutionist, and always delighted in my own evolutionary studies which I described to him from time to time in the course of our journeyings and conversations.

It was in Alaska that he quoted the lines from Goethe's *Wilhelm Meister* which inspired all his travels:

> Keep not standing fixed and rooted,
> Briskly venture, briskly roam;
> Head and hand, where 'er thou foot it,
> And stout heart are still at home.
> In each land the sun doth visit,
> We are gay what 'er betide,
> To give room for wandering is it
> That the world was made so wide.

Another sentiment of his regarding trees and flowers always impressed me: that was his attributing to them a personality, an individuality such as we associate with certain human beings and animals, but rarely with plants. To him a tree was some-

thing not only to be loved, but to be respected and revered. I well remember his intense indignation over the proposal by his friend Charles S. Sargent to substitute the name *Magnolia foetida* for *Magnolia grandiflora* on the grounds of priority. He quoted Sargent as saying, "After all, 'what's in a name?'" and himself as replying, "There is everything in the name; why inflict upon a beautiful and defenceless plant for all time the stigma of such a name as *Magnolia foetida?* You yourself would not like to have your own name changed from Charles S. Sargent to 'the malodorous Sargent.'"

John Muir's incomparable literary style did not come to him easily, but as the result of the most intense effort. I observed his methods of writing in connection with two of his books upon which he was engaged during the years 1911 and 1912. He came to our home on the Hudson in June, 1911, after the Yale Commencement, where he had received the degree of LL.D. on June 21. He brought with him his new silken hood, in which he said he had looked very grand in the Commencement parade. On Friday, June 21, he was established in Woodsome Lodge,* a log cabin on a secluded mountain height, to complete his volume on the Yosemite. Daily he rose at 4:30 o'clock, and after a simple cup of coffee labored incessantly on his two books, *The Yosemite* and *Boyhood and Youth.* It was very interesting to watch how difficult it was for him. In my diary of the time I find the following notes: "Knowing his beautiful and easy style it is very interesting to learn how difficult it is for him; he groans over his labors, he writes and rewrites and interpolates. He loves the simplest English language and admires most of all Carlyle, Emerson and Thoreau. He is a very firm believer in Thoreau and starts my reading deeply of this author. He also loves his Bible and is constantly quoting it, as well as Milton and Burns. In his attitude toward nature, as well as in his special gifts and abilities, Muir shares many qualities with Thoreau. First among these is his mechanical ability, his fondness for the handling of tools; second, his close identification with nature; third, his interpretation of the religious spirit of nature; fourth, his happiness in solitude with nature; fifth, his lack of

* The name is now changed to John Muir Lodge.

sympathy with crowds of people; sixth, his intense love of animals." Thoreau's quiet residence at Walden is to be contrasted with Muir's world-wide journeyings from Scotland to Wisconsin; his penniless journey down the Mississippi to Louisiana, Florida, across Panama and northward into California in its early grandeur; his establishment of the sawmill, showing again his mechanical ability, as a means of livelihood in the Yosemite; his climbs in the High Sierra and discovery of still living glaciers; his eagerness to see the largest glaciers of Alaska and his several journeys and sojourns there; his wandering all over the great western and eastern forests of the United States; his visits to special forests in Europe; his world tour, without preconceived plan, including the wondrous forests of Africa, Australia, New Zealand and Asia. Finally, his very last great journey.

When starting out on this South American journey, from which I among other friends tried to dissuade him, he often quoted the phrase, "I never turn back." Although he greatly desired to have a comrade on this journey, and often urged me to accompany him, he finally was compelled to start out alone, quoting Milton: "I have chosen the lonely way."

On July 26 I said good-bye to this very dear friend, leaving him to work on his books and prepare for the long journey to South America, especially to see the forests of *Araucaria*. I know that at this time he had little intention of going on to Africa. It was impulse which led him from the east coast of South America to take a long northward journey in order to catch a steamer for the Cape of Good Hope.

He remained at Garrison for more than two months, writing his *Boyhood and Youth* and his *Yosemite*, and I have just decided to erect a tablet at the log cabin where this work was done and to name the cabin John Muir Lodge.

Among the personal characteristics which stand out like crystal in the minds and hearts of his friends were his hatred of shams and his scorn of the conventions of life, his boldness and fearlessness of attack, well illustrated in his assault on the despoilers of the Hetch Hetchy Valley of the Yosemite, whom he loved to characterize as "thieves and robbers." It was a great privilege to be associated with him in this campaign. But cer-

tainly his chief characteristic was his intimate converse with nature and passionate love of its beauties; also I believe his marvelous insight into the creative powers of nature, closely interwoven with his deep religious sentiments and beliefs.

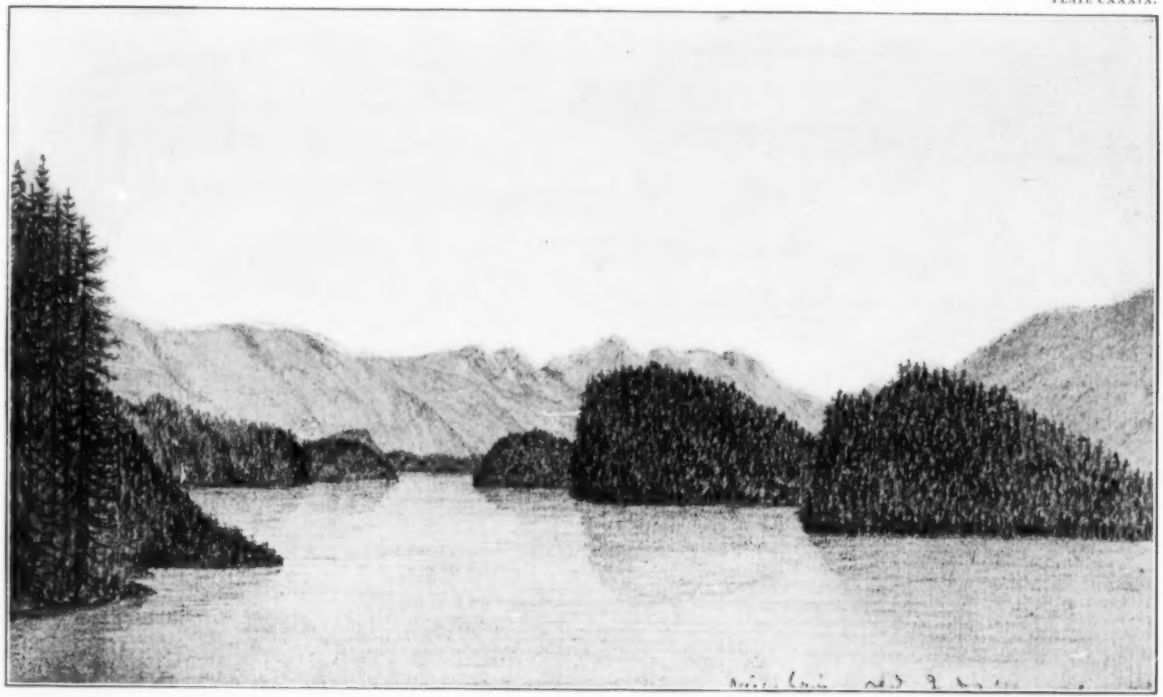
There were published in the *New York Evening Mail* some verses by Charles L. Edson with which I would close this all too brief tribute:

John o' the mountains, wonderful John,
Is past the summit and traveling on;
The turn of the trail on the mountain side,
A smile and "Hail!" where the glaciers slide,
A streak of red where the condors ride,
And John is over the Great Divide.

John o' the mountains camps today
On a level spot by the Milky Way;
And God is telling him how He rolled
The smoking earth from the iron mold,
And hammered the mountains till they were cold,
And planted the Redwood trees of old.

And John o' the mountains says: "I knew,
And I wanted to grapple the hand o' you;
And now we're sure to be friends and chums
And camp together till chaos comes."

PLATE CXXXIX.
SIERRA CLUB BULLETIN, VOL. X.



PENCIL SKETCH OF THE ALASKA FIORDS FROM JOHN MUIR'S ALASKA NOTEBOOKS

JOHN MUIR AT HOME, SEPTEMBER, 1913
John Muir, Mrs. Herbert W. Gleason, Edward T. Parsons, Mrs. E. T. Parsons
Photo by Herbert W. Gleason

JOHN MUIR AND THE ALASKA BOOK

By Marion Randall Parsons

In November, 1912, not long after his return from his last long journey across South America and Africa, Mr. Muir came to Berkeley to begin work on his Alaska notes. For a month he worked at my home with a stenographer, getting an exact transcription of the journals. The travel-worn, weather-stained little books carried on those memorable exploring trips of nearly forty years before were crammed with sketches and voluminous notes, jotted down perhaps in the canoe, or around the camp-fire, but oftenest in the solitudes of the great glaciers in whose study he cheerfully underwent so much cold and hunger and hardship.

It was most amusing to watch Mr. Muir at work. His intense interest in his subject led him to make many a long digression as his notes brought this or that incident to mind. Time meant nothing to him. Household machinery might stop, food grow cold on the table, and the business members of the family miss their morning trains while Mr. Muir pursued the tranquil course of his subject to the end. And so for an hour or more he might discourse while the stenographer sat with her hands folded. Her stolidity and indifference exasperated him beyond measure. To have no curiosity about the "terrestrial manifestations of God," above all to have no interest in glaciers, was to him both incomprehensible and sinful.

Once started on a task Mr. Muir was a tireless worker. The book in hand might have lain fallow for thirty years, but when it began to take form and substance he was all afire with eagerness to see it finished. Long evenings he spent poring over the notebooks or drawing from them the texts of the monologues he delighted in. His mind, indeed, dwelt with such complete absorption on his work that his conversation nearly always indicated its trend. His speech had all the beauty of phrase, the force and vigor of style of his written word, but with an added spell of fire and enthusiasm and glowing vitality that made it

Photo by Herbert W. Gleason

an inspiration and never-ending delight. Many a page of this Alaska book is for me a living record of our fireside hours of companionship.

Not until many months later, however, did I have any close acquaintance with *Travels in Alaska*. After working on it only a short time, Mr. Muir laid the book aside to take an active part in the fight for Hetch Hetchy. A few weeks after the final defeat a severe illness, from whose effects he never fully recovered, again interrupted the book. In his weakened condition the mere sifting out of the enormous mass of material was a task almost beyond his strength. Finding him one day utterly discouraged over it, I offered to go to him a day or two each week to help him until he could find the secretary to his mind. The arrangement proved unexpectedly happy and congenial to us both, and lasted until within a week of his death.

No one unacquainted with Mr. Muir's habits of work and living could appreciate the difficulty, nor, indeed, the humorous nature of the task. He was living alone in the dismantled old home, unused save for his study and sleeping porch. He went to his daughter's home for his meals, but neither she nor anyone else was allowed to touch the study, overflowing as it was with books and papers. Confusion was no word for the state of the manuscripts. He had been collecting material for over thirty years. In the interval that had elapsed since he began real work on it the two typewritten copies of the journals had become mixed, and in some cases both had been revised. Material from certain parts of the journals, moreover, had been used in newspaper letters and again in magazine articles, so as many as five different versions of some passages were in existence. Even had they been collected together and in order, to read and compare and reject would have been sufficiently hard, but fresh versions were constantly coming to light, or in my absence Mr. Muir would unearth a copy of some version already disposed of. He was in the habit of making notes on anything that came to hand—an opened envelope, a paper bag, the margin of a newspaper. No scrap of manuscript could ever be destroyed, and I could devise no system of putting the rejected material aside that served to keep him from "discovering" it at some later date. Finally I took to hiding copied and rejected sheets alike

inside a great roll of papers conspicuously tied with red ribbons and labeled in huge capitals "Copied!" and little by little the orange-box full of manuscript and the piles of scattered notes littering desk and table were reduced to a single working copy.

By seven o'clock each morning Mr. Muir had breakfasted and was ready for the day's work, usually lasting, with but the interruption of an hour at lunch and dinner and another at mail time, until ten at night. Composition was always slow and laborious for him. "This business of writing books," he would often say, "is a long, tiresome, endless job." To read his easy, flowing, forceful sentences, as rich in imagery and simple in diction as Bible English, no one would dream what infinite pains had been taken in their creation. Each sentence, each phrase, each word, underwent his critical scrutiny, not once but twenty times before he was satisfied to let it stand. His rare critical faculty was unimpaired to the end. So too was the freshness and vigor of his whole outlook on life. No trace of pessimism or despondency, even in the defeat of his most deeply cherished hopes, ever darkened his beautiful philosophy, and only in the intense physical fatigue brought on by his long working hours was there any hint of failing powers.

Mr. Muir himself, however, seemed to know that the end was near. Very touching were his attempts to rehabilitate the old house, whose forlorn emptiness and desolation were never allowed to weigh upon his own serene spirit, to put it in readiness for whomsoever should next live there. During the latter months of his life he often expressed the conviction that he would never live to write another book. His plan had long been to have his books tell the story of his life and travels, and in the early days of our work together he would often speak of the volumes of this wanderer's autobiography that he hoped yet to complete. But he was curiously untroubled about leaving his work unfinished. To a most unusual degree he seemed to feel that his had been a glorious life, wholly worth while. "Oh, I have had a *bully* life!" he said once. "I have done what I set out to do." And again: "To get these glorious works of God into yourself—that's the great thing; not to write about them." That nature's beauty had a deep and lasting influence on character was one of his most earnest beliefs. No impassable gulf between things ma-

terial and spiritual ever existed for him, and scientific study only served to deepen his natural reverence and faith. Throughout this book, as through all the others, rings his triumphant belief in the harmony and unity of our universe, its imperishable beauty, its divine conception, "reflecting the plans of God."

It was a rare privilege to work with him day by day, a man of the most original thought, of the very highest ideals, of simplicity and truth and kindliness unsurpassed. He gave of his best in conversation. His genial, whimsical humor, his acute appraisal of character and motives, his wide knowledge of literature and intimate friendship with many of the leading men of his time, made him a wonderful companion. The memory of our long hours together will always remain a delight and an inspiration, for they brought me not only increased love and reverence for a beautiful spirit, but a new conception of the spiritual significance of the great world of nature he loved so well.

The work on this book was the chief pleasure and recreation of Mr. Muir's last days, for through it he lived again many of the most glorious experiences of his life. Always I shall remember the glow that would light his face whenever he paused in his work to tell in stirring words the story of some particularly inspiring day. Many years ago, after watching a sunrise in Glacier Bay, he wrote: "We turned and sailed away, joining the outgoing bergs . . . feeling that, whatever the future might have in store, the treasures we had gained this glorious morning would enrich our lives forever." How true this was, how vital a part of his life these treasures of memory were, no one who met him could fail to know. For him neither time nor age had power to dim the glory of that icy land, after the Sierra Nevada, the best loved of all his wilderness homes.

JOHN MUIR

By Charles Sprague Sargent

Few men whom I have known loved trees as deeply and intelligently as John Muir. The love of trees was born in him, I am sure, and had abundant nourishment during his wanderings over the Sierra, where for months at a time he lived among the largest and some of the most beautiful trees of the world. No one has studied the Sierra trees as living beings more deeply and continuously than Muir, and no one in writing about them has brought them so close to other lovers of nature.

Muir and I traveled through many forests, and saw together all the trees of western North America, from Alaska to Arizona. We wandered together through the great forests which cover the southern Appalachian Mountains, and through the tropical forests of southern Florida. Together we saw the forests of southern Russia and the Caucasus and those of eastern Siberia, but in all these wanderings Muir's heart never strayed very far from the California Sierra. He loved the Sierra trees the best, and in other lands his thoughts always returned to the great sequoia, the sugar pine, among all trees best loved by him; the incense cedar, the yellow pine, the Douglas spruce, and the other trees which make the forests of California the most wonderful coniferous forests of the world. With these he was always comparing all minor growths, and when he could not return to the Sierra his greatest happiness was in talking of them and in discussing the Sierra trees.

TO HIGHER SIERRAS

By William Frederic Badè

"Longest is the life that contains the largest amount of time-effacing enjoyment—of work that is a steady delight. Such a life may really comprise an eternity upon earth." These words of John Muir I noted down after one of our last conversations. To few men was it given to realize so completely the element of eternity—of time-effacing enjoyment in work—as it was to John Muir. The secret of it all was in his soul, the soul of a child, of a poet, and of a strong man, all blended into one. Only such a one would have mounted the top of a pine tree in a gale-swept forest in order to enjoy the better the passionate music of the storm, and then tell how "we all travel the milky way together, trees and men; but it never occurred to me until this storm-day that trees are travelers in the ordinary sense. They make many journeys, not extensive ones it is true; but our own little journeys, away and back again, are only little more than tree-wavings—many of them not so much." When the storm had abated, he wrote, he "dismounted and sauntered down through the calming woods. The storm-tones died away, and turning toward the East, I beheld the countless hosts of the forests hushed and tranquil, towering above one another on the slopes of the hills like a devout audience. The setting sun filled them with amber light, and seemed to say while they listened, 'My peace I give unto you.'"

These quotations illustrate the irresistible charm of simplicity, the directness of poetical feeling and perception, that were a part of everything which Mr. Muir wrote, said, and did. When he struck out upon the long trail he was not only foremost among the nature writers of America, but in many respects the most distinguished figure among contemporary men of letters. It will take more than this hasteful, fretful generation to take the measure of his greatness, and to explore the sources of his power.

Before me lies a letter written to Mr. Muir by a friend forty-

nine years ago. He was then twenty-nine years old and had just received a serious injury to one of his eyes. "Dear John," the writer says, "I have often wondered what God was training you for. He gave you the eye within the eye, to see in all natural objects the realized ideas of His mind. He gave you pure tastes, and the steady preference of whatsoever is most lovely and excellent. He has made you a more individualized existence than is common, and by your very nature and organization removed you from common temptations. . . . Do not be anxious about your calling. God will surely place you where your work is."

Thus early did his friends see in him those personal qualities and those powers of insight which gave a rare distinction to his person and his presence. Evil thoughts fled at the sound of his voice. An innate nobility of character, an unstudied reverence for all that is sublime in nature or in life, unconsciously called forth the best in his friends and acquaintances. In the spiritual as in the physical realm flowers blossomed in his footsteps where he went. After all it is to such men as John Muir that we must look for the sustenance of those finer feelings that keep men in touch with the spiritual meaning and beauty of the universe, and make them capable of understanding those rare souls whose insight has invested life with imperishable hope and charm.

Not many years ago the Directors of the Sierra Club arranged for a quiet little dinner in honor of Sir James Bryce, when he returned from his visit to Australia. To all intents and purposes there were only two men at the dinner, Bryce and Muir, for the rest were intent listeners—too intent, altogether, to take more than mental notes. Both were enlarging upon the value of the civilizing influences that arise from a deep and humane understanding of nature. Sir James ventured the remark that the establishment of national parks, and the fostering of a love of nature and out-door life among children, would do more for the morals of the nation than libraries and law codes. Muir welcomed this opinion, and added that children ought to be trained to take a sympathetic interest in our wild birds and animals. "Under proper training," he said, "even the most savage boy will rise above the bloody flesh and sport business, the wild

foundational animal dying out day by day as divine uplifting, transfiguring charity grows in."

To all who knew John Muir intimately his gentleness and humaneness toward all creatures that shared the world with him, was one of the finest attributes of his character. He was ever looking forward to the time when our wild fellow creatures would be granted their indisputable right to a place in the sun. The shy creatures of forest and plain have lost in him an incomparable lover, biographer, and defender.

John Muir's writings are sure to live—by the law that men who lift their eyes at all from the commonplace ideals of work-a-day life will inevitably fix them on the snowy crests of human thought and achievement. Thence it is that they must derive their power to hope and to toil. Long as daisies shall continue to star the fields of Scotland men will choose to see them through the eyes of Burns. Forgotten generations have heard the nightingale sing her love-song at twilight; but a finer music is in her song since Keats listened to the notes from the thicket on the hill. Nor will the name of Wordsworth ever be dissociated from the warble of the rising lark and the call of the cuckoo across the quiet of rural England. John Muir is of their number. Among those who have won title to remembrance as prophets and interpreters of nature he rises to a moral as well as poetical altitude that will command the admiring attention of men so long as human records shall endure. He had "the eye within the eye." Thousands and thousands, hereafter, who go to the mountains, streams and cañons of California will choose to see them through the eyes of John Muir, and they will see more deeply because they see with his eyes.

But while in a high sense his wisdom has become a part of us forever, his going has left an aching void in the hearts of all lovers of the California mountains. Long accustomed to meet him where wild rivers go singing down the cañons, and skyey trails are lost amid cloudy pines, they now must perforce apply to him the simple words which sixteen years ago he wrote on his visit to the grave of his friend Ralph Waldo Emerson: "He had gone to higher Sierras, and, as I fancied, was again waving his hand in friendly recognition."

PLATE CXLI.

SIERRA CLUB BULLETIN, VOL. X.

JOHN MUIR AMONG THE PINES

"Sun-fed mountaineers rejoicing in their strength, chanting with the winds, in accord with the falling waters."—*Our National Parks*

Photo by Geo. R. King

PENCIL SKETCHES OF TOTEMS FROM THE OLD STICKEEN VILLAGE
FROM JOHN MUIR'S ALASKA NOTEBOOKS

A BIBLIOGRAPHY OF JOHN MUIR*

By Jennie Elliot Doran

This bibliography is an attempt to present an annotated list, complete, with the exception of newspaper articles, of John Muir's writings and of works about him. The arrangement of material is alphabetical under the different headings—Muir's writings being followed by the works about him.

For assistance in the preparation of this list thanks are due Professor C. B. Bradley of the University of California, for the use of his "Reference List to the Published Writings of John Muir," published in 1897† Earlier lists published in the *Overland Monthly* by E. A. Avery and W. T. Kittredge have also been used.

HONORS

A. M., Harvard University, 1896.
LL. D., University of Wisconsin, 1897.
Litt. D., Yale University, 1911.
LL. D., University of California, 1913.
Member, American Academy of Arts and Letters.
Member, Washington Academy of Science.
Fellow, American Association for the Advancement of Science.
President, Sierra Club.
President, American Alpine Club.

*[Note.—This bibliography is a thesis for graduation from the Library School of the University of Wisconsin, prepared by Miss Doran in June, 1915, under the supervision of Miss Mary Emogene Hazeltine, Preceptor of the school. Miss Doran had found some help in her work from the use of a *Reference List* made by me in 1897, and on completing it was good enough to remember me with a copy of her manuscript. Being myself under promise to the editor to furnish a bibliography for the forthcoming Muir Memorial number of the Sierra Club Bulletin, I was of course overjoyed to find the work thus done to my hand, and, as appeared on examination, so well done that very little was left for me to do save to add the publications which have appeared since Miss Doran completed her work, and a few older ones which have recently come to my notice, together with an occasional note of information which seemed worthy of being included in the record. All material so added by me has been included within square brackets. An asterisk indicates that the reference has not been personally verified because the publication itself was not available for verification either in Madison or here in California.

Both Miss Doran and her preceptor have kindly consented to its publication here. And it seems in every way fitting that this—which seems likely to be the definite bibliography—should be the work of a student of John Muir's own university, and should be published by the Sierra Club with which he was ever increasingly identified from its very beginning to the day on which he left us.

Cornelius Beach Bradley.

January 15, 1916.]

† *University of California Magazine*, December, 1897.

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Avery, E. A. Bibliography of John Muir. Overland, Oct., 1885, v. 6, p. 445-446.

Bradley, C. B. Reference List to the Published Writings of John Muir. Berkeley, University of California, 1898.
From the University of California Magazine, Dec., 1897.

Kittredge, W. T. Bibliography of John Muir. Overland, Oct., 1886. v. 8, p. 441-442.
A revision of the bibliography published by E. A. Avery in Overland, Oct., 1885, v. 6, p. 445-446.

San Francisco Public Library. Writings of John Muir. Bulletin, Feb. 1902. v. 8, p. 19.

BOOKS BY MUIR

Edward Henry Harriman. Doubleday, 1912. Gratis to libraries.

"Enumerates the characteristics that made Harriman a fundamental and progressive factor in the financial world, and no less among his fellow men." *Book Review Digest.*
Reviewed in Dial, June 1, 1912, v. 52, p. 442.

Letters to a Friend. Houghton, 1915. 300 copies, $3.00.

"They were written in the impressionable years of early manhood, soon after their writer had completed his four years of unprescribed studies at the University of Wisconsin." *Dial.*
Reviewed in Dial, April 15, 1915, v. 58, p. 294-295, by P. F. Bicknell; N. Y. Times, April 18, 1915, v. 20, p. 144, by Hildegarde Hawthorne.

Mountains of California. Century, 1894. $1.50. New and enlarged edition, 1911.

"We have here nature pure and unadulterated . . . sixteen chapters, each a gem of landscape or animal painting." *Nation.*
Reviewed in Athenæum, Jan. 19, 1895, p. 77-78; Dial, Feb. 1, 1895, v. 18, p. 75-77, by A. M. Earle; Nation, Nov. 15, 1894, v. 59, p. 366-367.
The book is chiefly made up of articles, revised and enlarged, which appeared in Century and Scribner's Monthly under the following titles and dates:
Bee-pastures of California. Century, June-July, 1882, v. 24, p. 222-229, 388-396.
Coniferous Forests of the Sierra Nevada. Scribner's Monthly, Sept., 1881, v. 22, p. 710-723, 921-931.
Douglass [Douglas] Squirrel of California. Scribner's Monthly, Dec., 1878, v. 17, p. 260-266.
Glacier Meadows of the Sierra. Scribner's Monthly, Feb., 1879, v. 17, p. 478-483.
Humming-bird of the California Waterfalls. Scribner's Monthly, Feb., 1878, v. 15, p. 545-554.
In the Heart of the California Alps. Scribner's Monthly, July, 1880, v. 20, p. 345-352.
Mountain Lakes of California. Scribner's Monthly, Jan., 1879, v. 17, p. 411-420.

Passes of the Sierra. Scribner's Monthly, March, 1879, v. 17, p. 644-652.

Wild Sheep of the Sierra. Scribner's Monthly, May, 1881, v. 22, p. 1-11.

Wind Storm in the Forests of the Yuba. Scribner's Monthly, Nov., 1878, v. 17, p. 55-59.

My First Summer in the Sierra. Houghton, 1911. $2.50.

"As a revelation of 'the glory and freedom of the out-of-doors' exemplified in the Sierra Nevada Mountains in and about the Yosemite Valley, Mr. Muir's narrative of his first impressions in those regions is most charming and refreshing." *Dial.*

Reviewed in A. L. A. Booklist, Sept., 1911, v. 8, p. 25; Dial, Oct. 1, 1911, v. 51, p. 251-252, by C. A. Kofoid; Literary Digest, Aug. 5, 1911, v. 43, p. 216; Nation, June 29, 1911, v. 92, p. 651; N. Y. Times, June 11, 1911, v. 16, 6. 374; Review of Reviews, July, 1911, v. 44, p. 123.

Enlarged from sketches published in the Atlantic, Jan.-April, 1911, v. 107, p. 1-11, 170-181, 339-349, 521-528.

Our National Parks. Houghton, 1901. $1.75. New and enlarged edition, 1909. $3.00.

"Throughout this volume there is a mixture of aesthetic appreciation, scientific knowledge, and personal adventure that gives it a unique charm." *Nation.*

Reviewed in Dial, March 1, 1902, v. 32, p. 163-164; Nation, April 10, 1902, v. 74, p. 294-295.

The book is made up of sketches published in the Atlantic under the following titles and dates:

American Forests. Aug., 1897, v. 80, p. 145-157.

Among the Animals of the Yosemite. Nov., 1898, v. 82, p. 617-631.

Among the Birds of the Yosemite. Dec., 1898, v. 82, p. 751-760.

Forests of Yosemite. April, 1900, v. 85, p. 493-507.

Fountains and Streams of Yosemite National Park. April, 1901, v. 87, p. 556-565.

Hunting Big Redwoods. Sept., 1901, v. 88, p. 304-320.

Wild Gardens of the Yosemite Park. Aug., 1900, v. 86, p. 167-179.

Wild Parks and Forest Reservations of the West. Jan., 1898, v. 81, p. 15-28.

Yellowstone National Park. April, 1898, v. 81, p. 509-522.

Yosemite National Park. Aug., 1899, v. 84, p. 145-152.

Stickeen. Houghton, 1909. 60c. New edition, 1914. 25c. (Riverside literature series.)

"Relates the narrow escape of the explorer and his faithful dog companion during a storm in the glacier country." *A. L. A. Booklist.*

Reviewed in A. L. A. Booklist, May, 1909, v. 5, p. 149; Nation, July 8, 1909, v. 89, p. 37; N. Y. Times, April 3, 1909, v. 14, p. 197; Review of Reviews, Aug., 1909, v. 40, p. 253.

Enlarged from a sketch published in Century, Sept. 1897, v. 54, p. 769-776, under the title "An Adventure with a Dog and a Glacier."

Story of My Boyhood and Youth. Houghton, 1913. $2.00.

"The author's adventures as a wholesome, nature-loving boy in a strict Presbyterian home in Scotland, his emigration to America, his interest in the domestic animals and wild life about his home in Wisconsin, . . . his enthusiasm as an inventor, and his life at the Univer-

sity of Wisconsin, are recounted in a vivid and interesting style, with many well told anecdotes and much humor." *A. L. A. Booklist.*

Reviewed in A. L. A. Booklist, May, 1913, v. 9, p. 382; Dial, April 1, 1913, v. 54, p. 293-294, by P. F. Bicknell; Independent, July 3, 1913, v. 75, p. 43-44; Literary Digest, July 5, 1913, v. 47, p. 26-27; Nation, April 17, 1913, v. 96, p. 391-392; N. Y. Times, March 23, 1913, v. 18, p. 158; Outlook, May 10, 1913, v. 104, p. 71-72; Review of Reviews, June, 1913, v. 47, p. 761; Wisconsin Alumni Magazine, Dec., 1913, v. 15, p. 134; Yale Review, April, 1914, v. 3, p. 611-614, by W. E. Leonard.

Enlarged from sketches published in the Atlantic under the following titles and dates:

Lessons of the Wilderness. Jan., 1913, v. 111, p. 81-92.
My Boyhood. Nov., 1912, v. 110, p. 577-587.
Out of the Wilderness. Feb., 1913, v. 111, p. 266-277.
Plunge Into the Wilderness. Dec., 1912, v. 110, p. 813-825.

Selections from the final chapter reprinted in the Wisconsin Alumni Magazine, April, 1914, v. 15, p. 295-301.

[Travels in Alaska. Houghton, 1915. $2.50; large paper ed., $5.00.

The late and ripe fruitage of the remarkable series of explorations made by Mr. Muir during the summers of 1879, 1880 and 1881. His immediate impressions were graphically recorded in three series of letters published in the San Francisco Bulletin. See Reference List which follows this article, p. 58.]

The Yosemite. Century, 1912. $2.40.

"Earthquake and avalanche adventures, careful studies of flowers, trees, rocks, streams, and other features, by the most ardent of nature lovers, go to make up a book of exceptional interest." *A. L. A. Booklist.*

Reviewed in A. L. A. Booklist, June, 1912, v. 8, p. 404; Bellman, May 18, 1912, v. 12, p. 627; Dial, June 1, 1912, v. 52, p. 429, by P. F. Bicknell; Literary Digest, June 1, 1912, v. 44, p. 1165-1168, by John Burroughs; Nation, May 9, 1912, v. 94, p. 472; N. Y. Times, April 28, 1912, v. 17, p. 253; Outlook, May 4, 1912, v. 101, p. 43; Review of Reviews, June, 1912, v. 45, p. 766-767.

CHAPTERS BY MUIR IN BOOKS AND PAMPHLETS

Alaska via Northern Pacific Railroad. St. Paul, 1892.

Railroad folder descriptive of Alaskan scenery.

Botanical Notes on Alaska (in U. S. House documents, 47th Congress, 2d session, v. 23, No. 105, p. 47-53).

"Plants named will be valuable for comparison with the plants of other regions."

[Glaciers and Snow-banners. Contemporary biography of California's Representative Men. San Francisco. Bancroft, 1882. v. 2, p. 104-112.

The selection follows a two-page biographical notice.]

Letters to Professor J. D. Butler (in Butleriana. Miscellanies. v. 2).

Contents: John Muir home from a year of world-circling, July 20, 1904—His telepathic search for Professor J. D. Butler, Aug., 1869.

Linnæus (in Warner, C. D., Library of the World's Best Literature. 1897. v. 16, p. 9077-9083).

The life and writings of the Swedish naturalist, with special reference to his contributions to the science of botany.

Notes on the Pacific Coast Glaciers (in Harriman Alaska Expedition. 1901. v. 1, p. 119-135. Doubleday, $7.50 each volume).

[On the Effects of the Earthquake of 26th March, 1872, in the Yosemite Valley. Bost. Soc. Nat. Hist. Proc., 1873, v. 15, p. 185-186.

Extract from a letter of Mr. John Muir, read by Dr. S. Kneeland.]

On the Glaciation of the Arctic and Sub-Arctic Regions visited by the United States steamer "Corwin" in the year 1881 (in U. S. Senate documents, 48th Congress, 1st session. v. 8, No. 204, p. 135-147).

On the Post-Glacial History of Sequoia Gigantea (in American Association for the Advancement of Science. Proceedings. Aug. 1876. v. 25, p. 242-253).

Clear and compact account of his explorations in the "Sequoia belt of the Sierra Nevada."

[Read by Professor Asa Gray at the meeting of the Association.]

Picturesque California and the Region West of the Rocky Mountains from Alaska to Mexico; ed. by John Muir. San Francisco, Dewing, 1888. 2 v.

The following chapters were written by Muir: Peaks and Glaciers of the High Sierra, The Passes of the High Sierra, The Yosemite Valley, Mount Shasta, Alaska, Washington and Puget Sound, The Basin of the Columbia River.

Scenery of California (In California the Land of Promise, p. 16-21. State Board of Trade, San Francisco, 1897-1898).

Selections (in In American Fields and Forests, 1909, Houghton. $1.50).

[The selections by Mr. Muir are both from Our National Parks, viz: Among the Birds of the Yosemite, p. 191-214; and The Sequoia, p. 215-267.]

Studies in the Formation of Mountains in the Sierra Nevada, California (in American Association for the Advancement of Science. Proceedings. Aug. 1874, v. 23, pt. 2, p. 49-64).

A scholarly article giving detailed information.

[This paper was read by Professor Asa Gray at the meeting of the Association.]

[Winter Phenomena of the Yosemite Valley. Bost. Soc. Nat. Hist. Proc., 1873, v. 15, p. 148-151.

Extracts from letters by Mr. Muir read before the Society by Dr. S. Kneeland.]

PERIODICAL ARTICLES BY MUIR

NOTE.—Periodical articles, subsequently collected in book form, have been listed under the title of the specific book.

Alaska. American Geologist, May, 1893, v. 11, p. 287-299.

Extremely interesting account of an Alaskan trip.

Alaska Trip. Century, Aug., 1897, v. 54, p. 513-526.

Descriptive of the rivers, forests, and glaciers of Alaska.

Ancient Glaciers of the Sierra. Californian, Dec., 1880, v. 2, p. 550-557.

Characteristic specimens are described.

Browne the Beloved. Dial, June 16, 1913, v. 54, p. 492.

A tribute to the memory of Francis Fisher Browne.

By-ways of Yosemite Travel. Overland, Sept., 1874, v. 13, p. 267-273.

Discovery of Glacier Bay. Century, June, 1895, v. 50, p. 234-247.

An account of Muir's explorations in Alaska in 1879 and 1880.

Endangered Valley. Century, Jan., 1909, v. 77, p. 464-469.

Description of the beauty of the Hetch-Hetchy Valley in the Yosemite National Park.

[Appeared also in what seem to be two editions of the same campaign pamphlet with different titles, viz: *a*, "Let All the People Speak and Prevent the Destruction of the Yosemite Park," not dated, but probably issued early in 1909; and *b*, "Let Every One Help to Save the Famous Hetch-Hetchy Valley," Nov., 1909, p. 14-17.]

Explorations in the Great Tuolumne Cañon. Overland, Aug., 1873, v. 11, p. 139-147.

Method of study was to drift about "from rock to rock, from stream to stream, from grove to grove."

Features of the Proposed Yosemite National Park. Century, Sept., 1890, v. 40, p. 656-667.

"Briefly touched upon a number of the chief features of a region which it is proposed to reserve out of the public domain for the use and recreation of the people."

Flood-storm in the Sierra. Overland, June, 1875, v. 14, p. 489-496.

Vivid description of a storm witnessed by Muir.

Forest Reservations and National Parks. Harper's Weekly, June 5, 1897, v. 41, p. 563-567.

With special reference to their preservation and management.
[Same article in SIERRA CLUB BULLETIN, Jan., 1896, v. 1, p. 271-284.]

Geologist's Winter Walk. Overland, April, 1873, v. 10, p. 355-358.

A letter containing detailed descriptions of the cañons, rivers, and mountains studied on a walking trip.

Grand Cañon of the Colorado. Century, Nov., 1902, v. 65, p. 107-116.

Clear and interesting descriptions of the wonders of "a gigantic sunken landscape made out of . . . limestone and sandstone."

Hetch-Hetchy Valley. Overland, July, 1873, v. 11, p. 42-50.

Notes the similarity to the Yosemite Valley.

Letter from the Yosemite Valley. Craftsman, March, 1905, v. 7, p. 654-665.

Description of the natural beauties observed on approaching the Yosemite.

Living Glaciers of California. Harper's Magazine, Nov., 1875, v. 51, p. 769-776.

Discussion of the essential characteristics of glaciers.

Living Glaciers of California. Overland, Dec., 1872, v. 9, p. 547-549.

Tells of the discovery of living glaciers, and of the method of proving that these ice-masses are glacial formations.

Reprinted in Journal of Science and Arts, Jan. 1873, v. 5, p. 69-71.
[The observations which form the kernel of this article seem first to have taken shape in a letter to Mrs. Carr, now published on pages 140-142 of his Letters to a Friend. The language of the letter is reproduced verbatim in the article.]

New Forest Reservation. Mining and Scientific Press, v. 74, p. 283.

New Sequoia Forests of California. Harper's Magazine, Nov., 1878, v. 57, p. 813-827.

Studies of the big trees, their size, distribution, and beauty.

Rambles of a Botanist Among the Plants and Climates of California. Old and New, June, 1872, v. 5, p. 767-772.

Rival of the Yosemite. Century, Nov., 1891, v. 43, p. 77-97.

Description of "The Cañon of the South Fork of Kings River, California." *Sub-title.*

Sargent's Silva. Atlantic, July, 1903, v. 92, p. 9-22.

A masterly review of The Silva of North America, 1890-1902, by C. S. Sargent.

Snow Banners of the California Alps. Harper's Magazine, July, 1877, v. 55, p. 162-164.

Personal observations of a "storm phenomenon."

Snow-storm on Mount Shasta. Harper's Magazine, Sept., 1877, v. 55, p. 521-530.

Graphic account of personal experiences in a severe storm.

Studies in the Sierra. Overland, 1874-1875.

A series of articles which appeared in the above periodical under the following titles and dates:

Ancient Glaciers and their Pathways. July, 1874, v. 13, p. 67-79.
Formation of Soils. Dec., 1874, v. 13, p. 530-540.
Glacial Denudation. Aug., 1874, v. 13, p. 174-184.
Mountain Building. Jan., 1875, v. 14, p. 64-73.
Mountain Sculpture. May, 1874, v. 12, p. 393-403.
Origin of Yosemite Valleys. June, 1874, v. 12, p. 489-500.
Post-glacial Denudation. Nov., 1874, v. 13, p. 393-402.

[The article on Mountain Sculpture is noticed and quoted from at considerable length in Jour. Am. Sci., 1874, v. 7, p. 515-516; and strangely enough is ascribed to Prof. Ezra F. Carr, who sent it to the Journal. The error, due probably to the fact that the Overland did not then print the names of its contributors along with their articles, was corrected in the next volume (8) p. 80.]

Three Adventures in the Yosemite. Century, March, 1912, v. 63, p. 656-661.

Contents: Perilous Exploration of the Yosemite Fall—Ride on an Avalanche—Earthquake Storms.

Treasures of the Yosemite. Century, Aug., 1890, v. 40, p. 483-500.

Description of the Yosemite Valley, "a noble mark for the traveler, whether tourist, botanist, geologist, or lover of wilderness pure and simple."

Tuolumne Yosemite in Danger. Outlook, Nov. 2, 1907, v. 87, p. 486-489.

Compares the Hetch-Hetchy Valley with Yosemite Valley, and tells of the scheme to make it into a reservoir.

Twenty Hill Hollow. Overland, July, 1872, v. 9, p. 80-86.

"A word for the great central plain of California in general, and for Twenty Hill Hollow, in Merced County, in particular."

Wild Sheep of California. Overland, April, 1874, v. 12, p. 358-363.

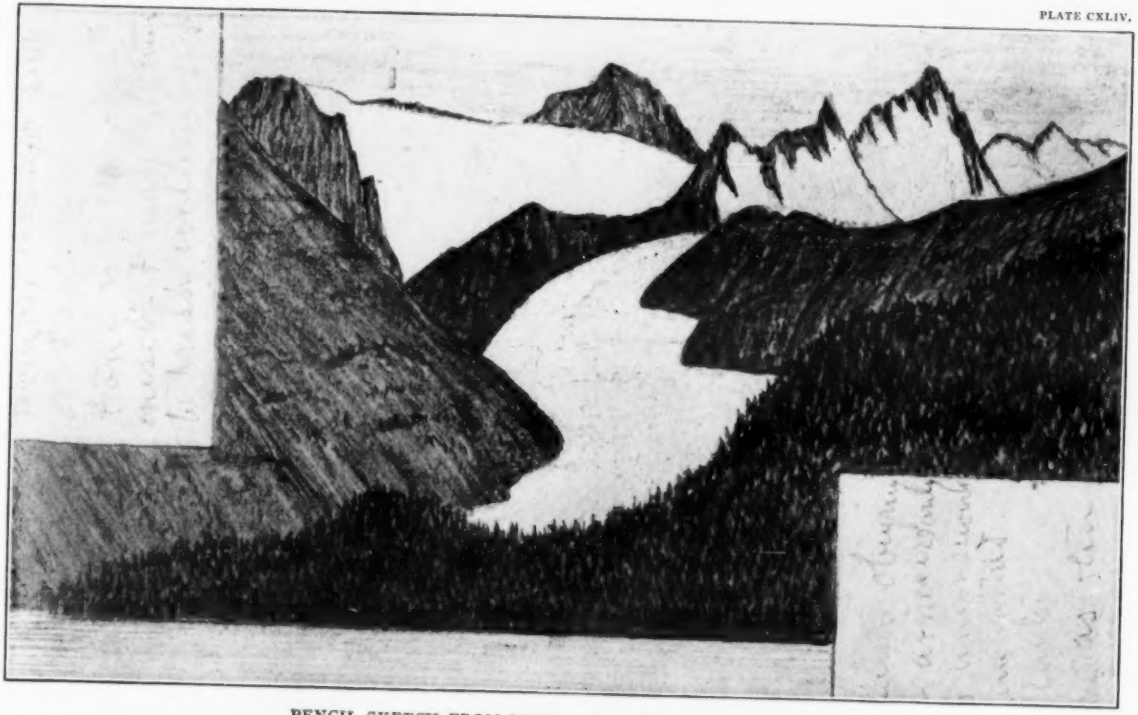
Describes their habits and appearance, and compares them with domestic sheep.

Wild Wool. Overland, April, 1875, v. 14, p. 361-366.

Compares the quality of the wool of the wild sheep with that of the domestic.

PLATE CXLIII.
SIERRA CLUB BULLETIN, VOL. X.

PENCIL SKETCH OF DEASE LAKE FROM JOHN MUIR'S ALASKA NOTEBOOKS



PENCIL SKETCH FROM JOHN MUIR'S ALASKA NOTEBOOKS

Yosemite Storms and Floods. Outlook, June 3, 1905, v. 80, p. 297-302.

The waterfalls of the Yosemite in flood time and storm.

Yosemite Valley in Flood. Overland, April, 1872, v. 8, p. 347-350.

Account of a three days' storm, and its resulting flood.

ARTICLES ON MUIR IN ENCYCLOPEDIAS AND OTHER GENERAL REFERENCE WORKS

Adams, O. F. Dictionary of American Authors. 1901, p. 265. 4 lines.

American Men of Science. 1910, p. 338. 7 lines.

Americana. 1912, v. 14, pages unnumbered. ⅓ col.

Appleton's Cyclopædia of American Biography. 1900, v. 7, p. 201. ½ col.

Appleton's New Practical Cyclopædia. 1910, v. 4, p. 348. ¼ col.

Century Cyclopedia of Names. 1911, p. 713. 14 lines.

Funk and Wagnall's Standard Encyclopedia. 1913, v. 18, p. 20. ½ col.

Harper's Encyclopædia of United States History. 1902, v. 6, p. 309. ¼ col. Por.

Lamb's Biographical Dictionary. 1903, v. 5, p. 616. ¾ col.

Men of America. 1908, p. 1668. ¾ col.

National Cyclopædia of American Biography. 1899, v. 9, p. 449. 2 col. Por.

Good biographical sketch, with special note of his periodical articles.

Nelson's Perpetual Loose-Leaf Encyclopædia. 1909, v. 8, p. 340. ½ col.

New International Encyclopædia. 1905, v. 14, p. 91. ¼ col.

New International Year Book. 1914, p. 470. 1½ col.

Good summary of Muir's activities and writings, written after his death.

New Student's Reference Work. 1911, v. 3, p. 1275. ½ col.

Brief account of his explorations in studying glaciers.

Standard Reference Work. 1913, v. 4, pages unnumbered. 2 col.

Biographical sketch, and description of Muir Glacier, with good illustration.

Thomas, Joseph. Universal Pronouncing Dictionary of Biography and Mythology. 1901, v. 2, p. 1781. 5 lines.

Warner, C. D. Library of the World's Best Literature, by C. D. Warner and others. 1897-1898, v. 18, p. 10405-10414. Por.; v. 29, p. 394. 8 lines.

V. 18 contains a biographical sketch, followed by a selection, "A Wind-storm in the Forests," from his "The Mountains of California."

Who's Who. 1914, v. 66, p. 1507. ⅓ col.

First entry made in 1903, v. 55, p. 990.

Who's Who in America. 1914-1915, v. 8, p. 1689. ⅓ col.

First entry made in 1899-1900, v. 1, p. 514.

CHAPTERS ABOUT MUIR IN BOOKS AND PAMPHLETS

Barrus, Clara. Our Friend John Burroughs. Houghton, 1914. $2.

Scattered references to Muir. For pages see index under Muir.

California—Public Instruction Dept. Two California Neighbors. Sacramento, published by the State, 1912.

Contains an extract from John Swett's "Public Education in California," describing Swett's friendship with Muir; also gives a biographical sketch by E. F. Strother.

James, G. W. Studious Hero of the Mountains, John Muir (in James, G. W. Heroes of California. 1910, p. 338-360. Little, $2.)

Interesting account of Muir's life and character. Contains extracts from his letters.

Markham, Edwin. John Muir, Poet-Scientist (in Markham, Edwin. California the Wonderful. 1914, p. 368-369. N. Y. Hearst's International Library Co. $6.)

[Pammel, L. H. John Muir (in Major F. Lacey Memorial Volume and Report of Iowa Park and Forestry Association for 1913, p. 477-481.)

An appreciative sketch of his life and work.]

PERIODICAL ARTICLES ABOUT MUIR

An Act of Heroism. Craftsman, March, 1905, v. 7, p. 665-667.

Describes the heroic rescue, by Muir, of a companion in danger.

Badè, W. F. John Muir. Science, March 5, 1915, v. 41, p. 353-354.

A concise, clear account of his life, activities and writings.

Baker, R. S. John Muir. Outlook, June 6, 1903, v. 74, p. 365-377.

"Shows how the lad Muir prepared himself, unconsciously and unknowingly, for the work of the man Muir." *James.*

Barrus, Clara. In the Yosemite with John Muir. Craftsman, Dec., 1912, v. 23, p. 324-335. Por.

Personal impressions of Muir formed on a camping trip in the Yosemite.

——— With John o' Birds and John o' Mountains in the Southwest. Century, Aug., 1910, v. 80, p. 521-528. Por.

Contrasts Muir's character with Burrough's.

Bland, H. M. John Muir. Overland, June, 1906, v. 47, p. 517-525. Por.

Purely biographical.

Buckley, E. R. John Muir. Wisconsin Alumni Magazine, Jan., 1900, v. 1, p. 141-146. Por.

"The information and part of the phraseology of this biography was taken from the "National Cyclopædia of American Biography." *Footnote.*

Carr, J. C. John Muir. Californian Illustrated Magazine, June, 1892, v. 2, p. 88-94. Por.

Descriptions of Muir's inventions as a young man, and of his wanderings and final arrival in California.

Clarken, G. G. At Home with John Muir. Overland, Aug., 1908, v. 52, p. 125-128.

"A keen appreciation of Mr. Muir and his characteristics." *Overland.*

Comrade of the Giant Trees. Literary Digest, Jan. 16, 1915, v. 50, p. 114-119.

"A man so moved by the spiritual forces that he actually compelled a careless nation to preserve the Yosemite Valley, the Big Trees, and the Yellowstone National Park as an everlasting heritage of the people."

In "Personal Glimpses."

Concerning an Old Student. Wisconsin Alumni Magazine, Nov., 1900, v. 2, p. 75-76.

Description of Muir's inventions during his student life at the University of Wisconsin.

Conversation with John Muir. World's Work, Nov., 1906, v. 13, p. 8249-8250.

In "Among the World's Workers."

Editorials on John Muir. Nation, Dec., 1914, v. 99, p. 762, 781-782.

Gives brief sketches of his life and works. Written after his death.

French, Harold. Psalmist of the Sierra. Sunset, Aug., 1914, v. 33, p. 355-357. Por.

Graydon, Katherine Merrill. John Muir. Butler Alumni Quarterly (Indianapolis), July, 1915, p. 81-92.

A series of remarkably vivid sketches of John Muir at successive stages of his development and achievement, written by one who knew him well and loved him; one who when a mere child used to accompany her aunt as she came to his darkened room to befriend and comfort the suffering stranger after the accident to his eye.]

John Muir. Bookman, Dec., 1898, v. 8, p. 288-290. Por.

In "Chronicle and Comment."

John Muir. Century, March, 1915, v. 89, p. 794-796.

Comparison with John Burroughs.
Same in Pattie, F. L., American Literature Since 1870. Not yet published.

John Muir. Chautauquan, Sept., 1907, v. 48, p. 87-88.

As a nature student.

John Muir. Scientific American, Jan. 9, 1915, v. 112, p. 47.

Written after his death.

John Muir: Geologist, Explorer, Naturalist. Craftsman, March, 1905, v. 7, p. 637-654.

Tells of the influences that helped to mold his character, and of his later writings and activities.

John Muir: Naturalist. Outlook, Jan. 6, 1915, v. 109, p. 11-12.

Editorial written after his death.

"John o' the Mountains." Review of Reviews, Feb., 1915, v. 51, p. 242-243.

Enumerates his activities and contains extracts from other periodical articles. Written after his death.

Johnson, R. U. Personal Impressions of John Muir. Outlook, June 3, 1905, v. 80, p. 303-306. Por.

Impressions gathered on a camping trip with Muir. Tells of the origin of the Yosemite National Park.

Johnson, W. H. John Muir. Nation, Jan. 14, 1915, v. 100, p. 50.

A letter to the editor of the Nation noting the attractiveness of Muir's *Stickeen*, and suggesting a new low-priced edition.

Knapp, Adeline. Some Hermit Homes of California Writers. Overland, Jan., 1900, v. 35, p. 2-5. Por.

Description of Muir's "shelter in which he might take refuge during the least endurable storms."

Lore of the Late John Muir. Bookman, Feb., 1915, v. 40, p. 616-618. Por.

An appreciation of his life and work. Written soon after his death.

Millard, Bailey. John Muir. Country Life, March, 1915, v. 27, p. 76-77. Por.

Sketch of his life and activities. Written after his death.

*——— John Muir. Suburban Life, Sept., 1908, v. 7, p. 121-122, 140.

——— Skyland Philosopher. Bookman, Feb., 1908, v. 26, p. 593-599.

Biographical sketch containing anecdotes illustrating his characteristics.

Nature-Study Transmuted Into Literature. Dial, Jan. 16, 1915, v. 58, p. 39.

Editorial expressing the regret caused by the death of Muir.

Reid, Harvey. John Muir. Outlook, Nov. 28, 1903, v. 75, p. 763-764.

Anecdotes by a classmate of Muir's in the University of Wisconsin.

Roorbach, Eloise. John Muir. Craftsman, Feb., 1915, v. 27, p. 479-480.

A tribute to Muir's power of interpreting nature. Written after his death.

Roosevelt, Theodore. John Muir: an Appreciation. Outlook, Jan. 6, 1915, v. 109, p. 27-28.

Reminiscent of a few days spent with Muir in the Yosemite. Written after his death.

Strother, French. John Muir. World's Work, April, 1907, v. 13, p. 8804-8808.

"Naturalist, geologist, interpreter of nature." *Sub-title.*

——— Three Days with John Muir. World's Work, March, 1909, v. 17, p. 11355-11358.

"Conversations with the man who has a most intimate knowledge of nature—his home in the Alhambra Valley, and his excursions into the Sierras." *Sub-title.*

Sudworth, G. B. John Muir. American Forestry, March, 1915, v. 21, p. 184-185.

Recounts the value of his efforts in forest preservation. Written after his death.

Swett, John. John Muir. Century, May, 1893, v. 46, p. 120-123.

Biographical sketch, with special emphasis on his explorations and discoveries.

Wyatt, Edith. John Muir. New Republic, Feb. 20, 1915, v. 2, p. 69-71.

A tribute to his memory.

Young, S. H. Alaska Days with John Muir. Outlook, v. 110. Three articles which appeared under the following titles and dates:

The Mountain. May 26, 1915, v. 110, p. 189-199.
The Ice Chief. June 23, 1915, v. 110, p. 431-442.
The Lost Glacier. July 28, 1915, v. 110, p. 723-733.

The first is an intimate account of a mountain-climbing expedition and of the author's rescue by Muir from a perilous situation. The other two are accounts of two long voyages of exploration and discovery which Muir and the writer of these articles took together in 1879 and 1880. [The three were afterwards published in book form under the same title as above, by Fleming H. Revell Co., 1915, $1.25.]

POEMS ABOUT MUIR

Bland, H. M. John Muir. Out West, March, 1915, v. 41, p. 121.

Edson, C. L. John o' the Mountains. Collier, Jan. 16, 1915, v. 54, p. 14.

Tompkins, I. C. John Muir: the Mountaineer. Sunset, May, 1900, v. 5, p. 31.

Reprinted in the Wisconsin Alumni Magazine, Nov., 1900, v. 2, p. 74.

PORTRAITS OF MUIR

Chautauquan, May, 1904, v. 39, p. 256.
Craftsman, Feb., 1915, v. 27, p. 458.
Outing, May, 1903, v. 42, p. 140.
Outlook, Jan. 6, 1915, v. 109, p. 32.
Overland, Aug., 1908, v. 52, p. 95; May, 1913, v. 61, p. 434.
Popular Science Monthly, March, 1915, v. 86, p. 310.
Review of Reviews, Nov., 1902, v. 26, p. 569.
Sunset, July, 1909, v. 23, p. 2.
World's Work, March, 1902, v. 3, p. 1802; Feb., 1910, v. 19, p. 12529. (With John Burroughs.)

A REFERENCE LIST TO JOHN MUIR'S NEWSPAPER ARTICLES

By Cornelius Beach Bradley

Newspaper articles have no proper place in a bibliography. If noticed at all, they must appear as addenda or as postscript —as they do here. Yet Mr. Muir's letters are of much more than ordinary interest, not merely in themselves as immediate memoranda of vivid experience and kindled feeling on the part of a gifted personality, but also for the rôle they played in the development of the writer's powers. So far as he continued the practice of writing them, they were the first drafts of chapters in his later books—the fresh-quarried ore which, in his brooding mind, through the long years was slowly transmuted into the fine gold of his finished work.

In Mr. Muir's case, indeed, the process began long before he became a newspaper correspondent. We see it in his *Letters to a Friend*—now happily accessible—portions of which are found to have been transferred almost verbatim into subsequent publications. And the material of his very latest work, *Travels in Alaska,* published since his death, first saw the light thirty-six years ago in the shape of three series of letters to the *San Francisco Bulletin.*

Nearly all these newspaper letters are grouped in distinct series, each series being the record of a season's explorations or quest. The serial letters began with a group of three Yosemite studies in 1871-1872, and were concluded eighteen years later in another group of three written from the same beloved valley.

The stream of Mr. Muir's writing of this sort rose steadily for ten years to its flood-tide in 1881, in the famous series of twenty-one letters written during the cruise of the "Corwin" in search of the "Jeanette." Then it suddenly ebbed. After that there was one letter in 1885, three—already mentioned—in 1889, and one more in 1897. There ends Mr. Muir's list. There were probably a few more written later, but they were no longer an organic feature of his literary work.

The causes for this change are not far to seek. His later travels were no more by untrodden ways and in unexplored realms. The powerful stimulus of discovery became therefore less and less an element in his inward prompting to write. Coincident with this was the absence henceforth of financial necessity. He no longer needed to write that he might have the means to continue his travels and studies. He was now free to address himself directly to putting into final and enduring shape the priceless results already won through long years of toil and hardship. But more potent probably than all these causes was the inward ripening of the man himself in heart and mind, not unlike that of Wordsworth when he exchanged the ecstasies—the "aching joys" and "giddy raptures"—of his youthful passion for Nature and of his pursuit of her, for a more thoughtful and more manly devotion. In Mr. Muir's case the change was no doubt less pronounced, but it was there, and it found significant and noble expression thenceforth in his ceaseless efforts on the one hand to rescue the glory and charm of Nature from selfish spoliation and wanton destruction; and on the other, so to interpret Nature that all men might worthily love and enjoy her.

* * * * * *

The newspaper articles here listed are the ones which appeared in my *Reference List* of 1897, which again was based chiefly upon Mr. Muir's printed *List of the Published Writings of John Muir* (Martinez, 1891), supplemented by entries in his own handwriting which brought it down to 1897. No serious attempt has been made to extend that list, both because after that date Mr. Muir very rarely wrote for the newspapers, and because no clue has been found to what he did write.

His list was chronological—was apparently a transcript from a memorandum book in which he was in the habit of jotting down the general topic or topics of the article, the publication to which it was sent, and the date of writing or of sending—month and year only, or sometimes only the month. The date of publication never appeared at all. Since this last was absolutely indispensable, if only for verification, a systematic search was made through the newspaper files of those years to recover it. The task was rendered the more laborious and perplexing by

two circumstances: In the first place, Mr. Muir's articles were dated *letters,* apparently without title or heading. The newspaper headings were therefore the work of the editor, and not at all likely to correspond with Mr. Muir's private memoranda. In the second place, through irregularities of the mails, or through accidents in the office, the letters did not always appear in the order in which they were written. In some cases they were delayed for months. Nevertheless the search was fairly successful. In the Californian files only four articles out of eighty-three remain undiscovered. Two of these, written in the Alaskan wilderness, probably never reached their destination. Files of the eastern newspapers concerned were not to be found in California, and, so far, attempts to have them searched in the East have not been successful. Four articles assigned to them must therefore remain for the present without verification.

The alphabetical arrangement of the older list having proved unsatisfactory for the present purpose, it has been replaced by a serial arrangement in chronological sequence. The titles have been revised to correspond in general with the published headings, though, in certain cases where these seemed to give insufficient characterization, a more fitting title from Mr. Muir's list has been added or substituted.

Dates in round brackets are the dates of writing, square brackets indicate that the article so included could not be found after diligent search. An asterisk indicates that the reference has not been verified because the files of the publication were not available for examination.

I. Serial Letters to the "New York Tribune"

[Yosemite Glaciers, Sept., 1871.]
[Yosemite in Winter. Jan. 1, 1872.]
[Yosemite in Spring. May 7, 1872]—The dates are Mr. Muir's.

II. Serial Letters to the "San Francisco Bulletin"

First Series—The Shasta Region. 5 letters, Oct., 1874-Jan., 1875.

Salmon-breeding on the McCloud River. (Oct. 24.) Oct. 29, 1874.
Shasta in Winter. (Nov. 24.) Dec. 2, 1874.
Shasta Game. (Nov. 29.) Dec. 12, 1874.
Modoc Memories—The Lava Beds. (No date.) Dec. 28, 1874.
Shasta Bees. (Dec. 17, 1874.) Jan 5, 1875.

Second Series—Summering in the Sierra. 11 letters, June-Nov., 1875.

The Summer Flood of Tourists. (June 14.) June 22, 1875.
A Winter Storm in June. (June 17.) June 24, 1875.
In the Sierra Forests. (July ..) Aug. 3, 1875.
The Kings River Yosemite. (Aug. 5.) Aug. 13, 1875.
Ascent of Mount Whitney. (Aug. 17.) Aug. 24, 1875.
From Fort Independence to Yosemite. (Sept. ..) Sept. 15, 1875.
The Fresno Grove of Sequoia. (Sept. ..) Sept. 21, 1875.
The Giant Forest of the Kaweah. (Oct. 19.) Oct. 22, 1875.
[The Southern Limit of the Sequoia. (Oct., 1875) .....]
Tulare Levels. (Oct. 25.) Nov. 17, 1875.
South Dome. (Nov. 10.) Nov. 18, 1875.

Third Series—Summering in the Sierra; Second Season. 5 letters, July-September, 1876.

The Calaveras Sequoias. (July 13.) July 20, 1876.
Ancient River Channels. (July 17.) July 26, 1876.
Sierra Caves. (Aug. 6.) Aug. 12, 1876.
Yosemite Tourists. (Aug. 20.) Aug. 24, 1876.
The Summit of South Dome. (Aug. 28.) Sept. 6, 1876.

Fourth Series, A.—Notes from Utah. 4 letters, May-July, 1877.

The City of the Saints. (May 15.) May 22, 1877.
A Great Storm in the Basin of Salt Lake. (May 19.) May 25, 1877.
Bathing in Salt Lake. (May 20.) June 14, 1877.
Mormon Lilies. (July ..) July 19, 1877.

B.—Semi-tropical California. 2 letters, September, 1877.

San Gabriel Valley (Sept. 1.) Sept. 7, 1877.
In the San Gabriel Mountains. (No date.) Sept. 11, 1877.

Fifth Series—Nevada. 5 letters, October, 1878; January, 1879.

Nevada Farms. (Oct. ..) Oct. 5, 1878.
Nevada Forests. (Oct. 22.) Oct. 31, 1878.
Nevada's Timber Belt. (Oct. 20.) Nov. 19, 1878.
Glacial Phenomena of the Great Basin. (Nov. 28.) Dec. 5, 1878.
Nevada's Dead Towns. (No date.) Jan. 15, 1879.

Sixth Series—Notes of a Naturalist. 11 letters, Aug., 1879; January, 1880.

Sea Voyage—British Columbia. (June 25.) Aug. 27, 1879.
Puget Sound. (June 28.) Aug. 29, 1879.
Fort Wrangel. (Aug. 8.) Sept. 6, 1879.
Alaska Glaciers, I. (Sept. 5.) Sept. 23, 1879.
Alaska Glaciers, II. (Sept. 7.) Sept. 27, 1879.
Alaska Coast Scenery. (Sept. 25.) Oct. 29, 1879.
Alaska Forests. (Oct. 3.) Oct. 30, 1879.
A Deserted Indian Village. (Oct. 12.) Nov. 1, 1879.
Alaska Climate. (Oct. 16.) Nov. 8, 1879.
Alaska Goldfields. (Dec. 22, 1879.) Jan. 10, 1880.
Alaska Rivers. (Dec. 27, 1879.) Jan. 20, 1880.

Seventh Series—Alaska Land. 6 (or 8?) letters. September-November, 1880.

Canoe Voyage Among Islands and Icebergs. (Aug. 18.) Sept. 25, 1880.
Sum Dum Bay. (Aug. 22.) Oct. 7, 1880.

An Eventful Day. (Aug. 14.) Oct. 9, 1880.
[Sum Dum Bay: Exploring Right Fork. (Aug. 1880.) .....]
An Alaska Yosemite. (Aug. 20.) Oct. 16, 1880.
[Right Arm of Sum Dum. (Aug. 1880.) .....]
Among the Glaciers and Bergs of Sum Dum Bay. (Aug. 22.) Oct. 23, 1880.
Taku Fiords and Glaciers. (Aug. 24.) Nov. 13, 1880.

Eighth Series—Cruise of the "Corwin." 21 letters. June-October, 1881.

At Ounalaska. (May 18.) June 20, 1881.
At St. Paul. (May 23.) July 13, 1881.
On the Siberian Coast. (May 31.) July 13, 1881.
Pushing Northwestward. (June 2.) July 13, 1881.
Weathering a Gale in St. Laurence Bay. (June 6.) July 13, 1881.
Dodging the Ice. (June 15.) July 13, 1881.
The Aleutian Islands. (May 21.) July 25, 1881.
Wreck of the "Vigilant." (June 29.) Aug. 15, 1881.
St. Laurence Island. (July 2.) Aug. 15, 1881.
Return to St. Michael's. (July 8.) Aug. 15, 1881.
At St. Michael's. (June 20.) Aug. 16, 1881.
At Metchigme Bay. (June 27.) Aug. 16, 1881.
At East Cape. (July 1.) Aug. 16, 1881.
Herald Island. (July 31.) Sept. 28, 1881.
Wrangel Land. (Aug. 16.) Sept. 29, 1881.
On Wrangel Land. (Aug. 17.) Oct. 22, 1881.
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MUIR LODGE—AN APPRECIATION

By Mary Frances Kellogg

Of the worship due our western mountains, not a tithe has been paid. Nor does the finest homage come from tourists poured into resorts by swarming cities, but from the winnowed few who behold the snow-girdled peaks, the innumerable mountain lakelets and the myriads of flower-enameled, fern-brocaded meadows circled by majestic sequoias. And how many of these elect were imbued with enthusiasm by John Muir's matchless word-pictures! This above all is both his legacy to us and his own crown of glory—to have taught us his beauty-lore.

So John Muir has no need of a memorial. Rather do we long to express, though never so inadequately, the thanks we owe him. From magnificent glaciers, and forests, and mountains, even down to our own modest mountain home, all borrow honor from his name.

If that which is essentially material; if that which makes easeful the mountaineer's toil; if that which cements friendships of the out-of-doors—if such may stand as an appreciation of one so predominantly of the spirit, who shunned no privation or hardship if it brought him into harmony with wildness, whose feet wandered so much alone and whose passionate search for understanding of the sculpturing of the ages found so few kindred souls—then Muir Lodge is, as intended, an appreciation of John Muir. Though he walked alone, he valued friendship as one of the finest of mortal possessions.

Muir Lodge is a brief home for the wayfarer, ever urging beyond—on—on, up the wonder-trails leading over the heights and far within the mountain barriers. In its simple plainness it is appropriate. No complications of thought, language or character were his. All his life was as openly inspiring as one of his own books.

John Muir could teach us because, like all great men, he exemplified a singleness of purpose—a perfect absorption in that to which he was dedicated. Because he himself reverently

adored, he was able to give to us something of the majesty of the mountains, the glory of the glaciers, the records of the rocks, the teachings of the trees, the songs of the streams, the friendliness of the flowers. Material as these things are they roused in John Muir a very white heat of devotion—a devotion his writings breathe in every line. John Muir's lofty worship, which thanked God for every good day and each bit of loveliness, must have been most acceptable to the Maker of the Universe, who saw that His works were good. Here is a man we may delight to honor. How the memory of him steadies us when our own understanding of essentials becomes warped.

The first time I ever saw John Muir he spoke of his intention to build some day a home close under the Sierra Madre Mountains. He often later spoke of this longing. And though it was never our good fortune to have him dwelling among us, yet in Muir Lodge we have a sort of shrine for his spirit, where none may sojourn without receiving the benediction of the mountains, which John Muir, more than any other, taught us to know aright. On the wall his pictured face first greets the entering guest.

Such a true, simple heart could not fail to love to be loved. At the time of the dedication of Muir Lodge, he wrote, "I'm very glad to get the picture of the fine Muir Lodge. It's pleasant to be remembered in this way in the midst of this long-drawn-out battle for our national parks."

STUDIES IN THE SIERRA*

By John Muir

No. 11. Mountain Sculpture, Origin of Yosemite Valleys

All the valleys and cañons of the western flank of the Sierra, between 36° and 39° north latitude, naturally classify themselves under two genera, each containing two species. One genus comprehends all the slate valleys, the other all that are built of granite. The latter is far the more important, both on account of the greater extent of its geographical range and the grandeur and simplicity of its phenomena. All the valleys of both genera are valleys of erosion. Their chief distinguishing characteristics may be seen in the following descriptions:

Slate Valleys

1. Cross-sections, V-shaped, or somewhat rounded at bottom, *walls irregular in structure,* shattered and weak in appearance, because of the development of slaty cleavage planes and joints, which also prevent the formation of plane-faced precipices. Bottom showing the naked bed-rock, or covered by rocky debris, and sloping in the direction of the trend. Nearly all of the foothill valleys belong to this species. Some of the older specimens are smoothly covered with soil, but *meadows and lakes are always wanting.*

2. More or less widened, *branching at the head.* Bottom, with meadows, or groves, or lakelets, or all together. Sections and walls about as in No. 1. Fine examples of this species occur on the head-waters of the San Joaquin.

Granite Valleys

1. Cross-sections narrowly or widely V-shaped. Walls seldom interrupted by side cañons, magnificently simple in structure and general surface character, and presenting plane precipices in great abundance. Bottom sloping in the direction of the trend,

* Reprinted from the *Overland Monthly* of June, 1874. This is the second of a series of seven studies in which Mr. Muir developed his theories of the geology of the Sierra.—*Editor.*

mostly bare, or covered with unstratified glacial and avalanche bowlders. Groves and meadows wanting.

2. *Branching at head, with beveled and heavily abraded lips at foot.* Bottom *level,* meadowed, laked, or groved. Walls usually very high, often interrupted by side cañons. Sections as in No. 1. To this species belongs the far-famed *Yosemite** whose origin we will now discuss.

Yosemite Valley is on the main Merced, in the middle region of the range. It is about seven miles long from east to west, with an average width at bottom of a little more than half a mile, and at the top of a mile and a half. The elevation of the bottom above sea level is about 4,000 feet. The average height of the walls is about 3,000 feet, made up of a series of sublime rock forms, varying greatly in size and structure, partially separated from one another by small side cañons. These immense wall-rocks, ranged picturesquely together, do not stand in line. Some advance their sublime fronts far out into the open valley, others recede. A few are nearly vertical, but far the greater number are inclined at angles ranging from twenty to seventy degrees. The meadows and sandy flats outspread between support a luxuriant growth of sedges and ferns, interrupted with thickets of azalea, willow and brier-rose. The warmer sloping ground along the base of the walls is planted with noble pines and oaks, while countless alpine flowers fringe the deep and dark side cañons, through which glad streams descend in falls and cascades, on their way from the high fountains to join the river. The life-giving Merced flows down the valley with a slow, stately current, curving hither and thither through garden and grove, bright and pure as the snow of its fountains. Such is Yosemite, the noblest of Sierra temples, everywhere expressing the working of Divine harmonious law, yet so little understood that it has been regarded as "an exceptional creation," or rather *exceptional destruction* accomplished by violent and mysterious forces. The argument advanced to support this view is substantially as follows: It is too wide for a water-eroded valley, too irregular for a fissure valley, and too angular and local for a primary valley originating in a fold of the mountain surface during

* We will henceforth make use of the word Yosemite both as a specific and geographical term.

the process of upheaval; therefore, a portion of the mountain bottom must have suddenly fallen out, letting the superincumbent domes and peaks fall rumbling into the abyss, like coal into the bunker of a ship. This violent hypothesis, which furnishes a kind of Tophet for the reception of bad mountains, commends itself to the favor of many, by seeming to account for the remarkable sheerness and angularity of the walls, and by its marvelousness and obscurity, calling for no investigation, but rather discouraging it. Because we can not observe the bed-rock to ascertain whether or not it is fractured, this engulfment hypothesis seems to rest safely under cover of darkness, yet a film of lake gravel and a meadow blanket are its only concealments, and, by comparison with exposed sections in other Yosemites where the sheer walls unite with the solid, unfissured bottom, even these are in effect removed. It becomes manifest, by a slight attention to facts, that the hypothetical subsidence must have been limited to the valley proper, because both at the head and foot we find the solid bed-rock.

The breaking down of only one small portion of the mountain floor, leaving all adjacent to it undisturbed, would necessarily give rise to a very strongly marked line of demarcation, but no such line appears; on the contrary, the unchanged walls are continued indefinitely, up and down the river cañon, and lose their distinguishing characteristics in a gradual manner easily accounted for by changes in the structure of the rocks and lack of concentration of the glacial energy expended upon them. That there is comparatively so small a quantity of debris at the foot of Yosemite walls is advanced as an argument in favor of subsidence, on the grounds that the valley is very old, and that a vast quantity of debris must, therefore, have fallen from the walls by atmospheric agencies, and that the hypothetical "abyss" was exactly required to furnish storage for it. But the Yosemite Valley is not very old. It is very young, and no vast quantity of debris has ever fallen from its walls. Therefore, no abyss was required for its accommodation.

If, in accordance with the hypothesis, Yosemite is the only valley furnished with an abyss for the reception of debris, then we might expect to find all abyssless valleys choked up with the great quantity assumed to have fallen; but, on the contrary, we

find their debris in the same condition as in Yosemite, and not more abundant. Indeed, in some portions of valleys as deep and sheer as Yosemite there is absolutely no talus, and that there never has been any is proved by both walls and bottom being *solid and ice-polished*. Many examples illustrative of this truth may be seen in the great Tuolumne and Kings River valleys.

Where the granite of Yosemite walls is intersected with feldspathic veins, as in the lowest of the Three Brothers and rocks near Cathedral Spires, large masses are loosened, from time to time, by the action of the atmosphere, and hurled to the bottom with such violence as to shake the whole valley; but the aggregate quantity which has been thus weathered off, so far from being sufficient to fill any great abyss, *forms but a small part of the debris slopes actually found on the surface,* all the larger angular taluses having been formed simultaneously by severe earthquake shocks that occurred three or four hundred years ago, as shown by their forms and the trees growing upon them. The attentive observer will perceive that *wherever a large talus occurs, the wall immediately above it presents a scarred and shattered surface* whose area is always proportional to the size of the talus, but *where there is no talus the wall is invariably moutonée or striated,* showing that it is young and has suffered little change since it came to light at the close of the glacial period. On the 23rd of March, 1872, I was so fortunate as to witness the sudden formation of one of these interesting taluses by the precipitation of the Yosemite Eagle Rock by the first heavy shock of the Inyo earthquake, whereby their local character and simultaneity of formation was fully accounted for. This *new earthquake* gave rise to the formation of many *new taluses* throughout the adjacent valleys, corresponding in every particular with the older and larger ones whose history we have been considering.

As to the important question, What part may water have played in the formation of Sierra valleys? we observe that, as far as Yosemite is concerned, the five large streams which flow through it are universally engaged in the work of *filling it up*. The granite of the region under consideration is but slightly susceptible of water denudation. Throughout the greater portion of the main upper Merced Valley the river has not eroded

its channel to a depth exceeding three feet since it first began to flow at the close of the glacial epoch, although acting under every advantage of concentration and quick descent. The highest flood-mark the young river has yet recorded upon the clean glacial tablets of its banks is only seven or eight feet above the present level, at ordinary stages. Nevertheless, the aggregate annual quantity that formerly passed down these cañon valleys was undoubtedly far greater than passes at the present time, because on the gradual recession of the glaciers at the close of the period, the supply would necessarily be more constant, from their melting all through the seasons. The evidence, however, is incontestable, which shows that the highest floods of Sierra rivers in the upper and middle regions of the range never much exceeded those of the present time.

Five immense glaciers from five to fifteen hundred feet in depth poured their icy floods into Yosemite, uniting to form one huge trunk, moved down through the valley with irresistible and never-ceasing energy, crushing and breaking up its strongest rocks, and scattering them in moraines far and near. Many, while admitting the possibility of ice having been the great agent in the production of Yosemite valleys, conjecture that earthquake fissures, or cracks from cooling or upheaval of the earth's crust, were required to enable the glaciers to make a beginning and to guide them in the work. We have already shown ("Studies in the Sierra," in *Overland* for May*) that cleavage planes and joints exist in a latent or developed condition in all the granite of the region, and that these exert immense influence on its glacial erodibility. During five years' observation in the Sierra, I have failed to discover a single fissure of any kind, although extensive areas of clean-swept glacial pavements afford ample opportunity for their detection, did they exist. Deep slots, with regular walls, appearing as if sawed, or mortised, frequently occur. These are formed by the disintegration of soft seams a few inches or feet in thickness, contained between walls of stronger granite. Such is the character of the so-called fissure said to exist in a hard portion of the south wall of Yosemite, opposite the Three Brothers, so frequently quoted in speculations upon the valley's origin.

* Reprinted in Sierra Club Bulletin, Vol. IX, No. 4, January, 1915.

The greatest effects of earthquakes on the valley we have already noticed in avalanche taluses, which were formed by the precipitation of weak headlands, that fell like ripe fruit. The greatest obstacle in the way of reading the history of Yosemite valleys is not its complexity or obscurity, but simply the *magnitude of the characters* in which it is written. It would require years of enthusiastic study to master the English alphabet if it were carved upon the flank of the Sierra in letters sixty or seventy miles long, their bases set in the foothills, their tops leaning back among the glaciers and shattered peaks of the summit, often veiled with forests and thickets, and their continuity often broken by cross-gorges and hills. So also the sculptured alphabet cañons of the Sierra are magnificently simple, yet demand years of laborious research for their apprehension. A thousand blurred fragments must be conned and brooded over with studious care, and kept vital and formative on the edges, ready to knit like broken living bones, while a final judgment is being bravely withheld until the entire series of phenomena has been weighed and referred to an all-unifying, all-explaining law. To one who can leisurely contemplate Yosemite from some commanding outlook, it offers, as a whole, a far more natural combination of features than is at all apparent in partial views obtained from the bottom. Its stupendous domes and battlements blend together and manifest delicate compliance to law, for the mind is then in some measure emancipated from the repressive and enslaving effects of their separate magnitudes, and gradually rises to a comprehension of their unity and of the poised harmony of their general relations.

Nature is not so poor as to possess only one of anything, nor throughout her varied realms has she ever been known to offer an exceptional creation, whether of mountain or valley. When, therefore, we explore the adjacent Sierra, we are not astonished to find that there are many Yosemite valleys identical in general characters, each presenting on a varying scale the same species of mural precipices, level meadows, and lofty waterfalls. The laws which preside over their distribution are as constant and apparent as those governing the distribution of forest trees. They occur only in the middle region of the chain, where the declivity is considerable and where the granite is Yosemitic in

its internal structure. The position of each valley upon the Yosemitic zone indicates a marked and inseparable relation to the ancient glaciers, which, when fully deciphered, amounts to cause and effect. So constant and obvious is this connection between the various Yosemites and the *névé* amphitheatres which fountained the ancient ice-rivers, that an observer, inexperienced in these phenomena, might easily anticipate the position and size of any Yosemite by a study of the glacial fountains above it, or the position and size of the fountains by a study of their complementary Yosemite. *All Yosemites occur at the junction of two or more glacial cañons.* Thus the greater and lesser Yosemites of the Merced, Hetch Hetchy, and those of the upper Tuolumne, those of Kings River, and the San Joaquin, all occur immediately below the confluences of their ancient glaciers. If, in following down the cañon channel of the Merced Glacier, from its origin in the *névé* amphitheatres of the Lyell group, we should find that its sudden expansion and deepening at Yosemite occurs without a corresponding union of glacial tributary cañons, and without any similar expansion elsewhere, then we might well be driven to the doctrine of special marvels. But this emphatic deepening and widening becomes harmonious when we observe smaller Yosemites occurring at intervals all the way down, across the Yosemitic zone, *wherever a tributary cañon unites with the trunk,* until, on reaching Yosemite, where the enlargement is greatest, we find the number of confluent glacier-cañons is also greatest, as may be observed by reference to Fig. 1. Still further, the aggregate areas of their cross-sections is approximately equal to the area of the cross-sections of the several resulting Yosemites, just as the cross-section of a tree trunk is about equal to the sum of the sections of its branches. *Furthermore, the trend of Yosemite valleys is always a direct resultant of the sizes, directions, and declivities of their confluent cañons,* modified by peculiarities of structure in their rocks. Now, all the cañons mentioned above are the abandoned channels of glaciers; therefore, these Yosemites and their glaciers are inseparably related. Instead of being local in character, or formed by obscure and lawless forces, *these valleys are the only great sculpture phenomena whose existence and exact positions we may confidently anticipate.*

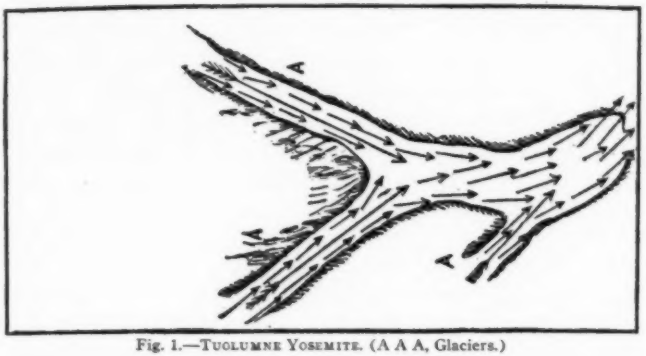

Fig. 1.—Tuolumne Yosemite. (A A A, Glaciers.)

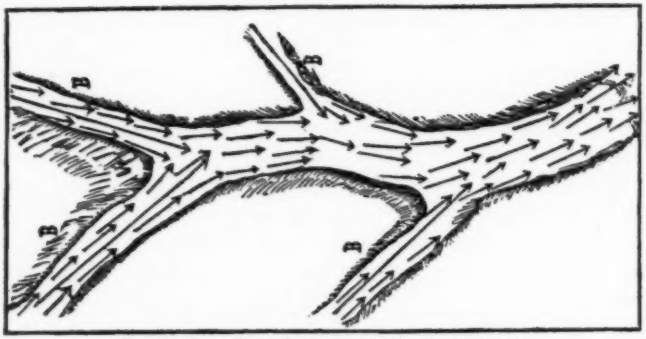

Fig. 2.—Kings River Yosemite. (B B B B, Glaciers.)

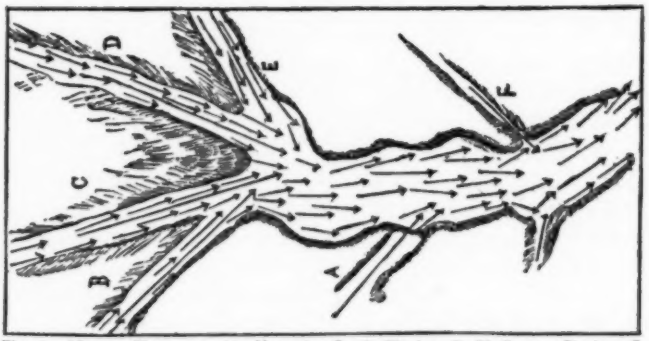

Fig. 3.—Merced Yosemite. (A, Yosemite Creek Glacier; B, Hoffmann Glacier; C, Tenaya Glacier; D, South Lyell Glacier; E, Illilouette Glacier; F, Pohono Glacier

Depth of Yosemite

Much stress has been laid on the mere uncompared arithmetical depth of Yosemite, but this is a character of no consequence to the consideration of its origin. The greatest Merced Yosemite is 3,000 feet deep; the Tuolumne, 2,000; another, 1,000; but what geologist would be so unphilosophical as to decide against the identity of their origin from difference in depth only. One pine tree is 100 feet high, lean and crooked, from repressing winds and the poverty of the soil which nourished it; while another, more fortunate in the conditions of its life, is 200 feet high, erect and vigorous. So, also, one Yosemite is 3,000 feet deep because of the favorable structure of its rocks and the depth and number of the ice-rivers that excavated it; another is half as deep, because of the strength of its rocks, or the scantiness of the glacial force exerted upon it. What would be thought of a botanist who should announce that our gigantic *Sequoia* was not a tree at all, offering as a reason that it was too large for a tree, and, in describing it, should confine himself to some particularly knotty portion of the trunk? In Yosemite there is an evergreen oak double the size of ordinary oaks of the region, whose trunk is craggy and angular as the valley itself, and colored like the granite bowlders on which it is growing. At a little distance this trunk would scarcely be recognized as part of a tree, until viewed in relation to its branches, leaves and fruit. It is an admirable type of the craggy Merced cañon-tree, whose angular Yosemite does not appear as a natural portion thereof until viewed in its relations to its wide-spreading branches, with their fruit and foliage of meadow and lake.

We present a ground-plan of three Yosemite valleys, showing the positions of their principal glaciers, and the relation of their trends and areas to them. The large arrows in Figs. 1, 2, 3 show the positions and directions of movement of the main confluent glaciers concerned in the erosion of three Yosemites. With regard to the number of their main glaciers, the Tuolumne Yosemite may be called a Yosemite of the *third* power; the Kings River Yosemite, of the fourth power; and the Merced Yosemite, of the fifth power. The granite in which each of these three Yosemites is excavated is of the same general quality; therefore, the differences of width, depth, and trend observed, are due al-

most entirely to the number, magnitude, declivity and mode of combination of the glacial system of each. The similarity of their ground-plans is obvious from a single glance at the figures; their cross-sections are no less similar. One of the most characteristic from each of the valleys under consideration is shown in Figs. 4, 5 and 6, drawn on the same scale.

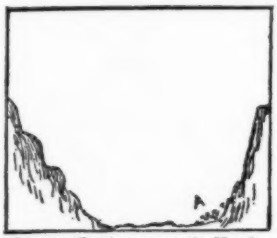

Fig. 4.—Section across the Hetch Hetchy Valley, or lower Tuolumne Yosemite

Fig. 5.—Section across the Kings River Yosemite

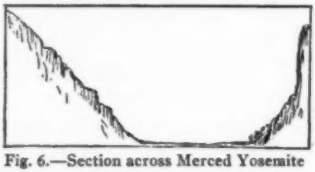

Fig. 6.—Section across Merced Yosemite

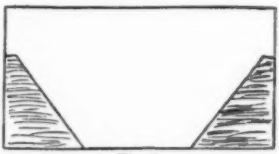

Fig. 7

The perpendicularity of Yosemite walls is apt to be greatly over-estimated. If the slopes of the Merced Yosemite walls were to be carefully measured with a clinometer at intervals of say 100 yards, it would be found that the average angle they make with the horizon is less than 50°, as shown in Fig. 7. It is not possible that the bottom could drop out of a valley thus shaped, no matter how great the upheaval or down-heaval, or side-heaval.

Having shown that Yosemite, so-called, is not unique in its ground-plan or cross-sections, we will now consider some of the most remarkable of its rock forms. The beautiful San Joaquin Dome in the cañon of the San Joaquin, near the confluence of the south fork, looking south (Fig. 9), shows remarkable resemblance to the Yosemite Half Dome, as seen from Tenaya Cañon (Fig. 8). They are similarly situated with reference to the glaciers that denuded them, Half Dome having been assailed

by the combined Tenaya and Hoffman glaciers on the one side, and by the South Lyell or Merced Glacier on the other; the San Joaquin Dome, by the combined glaciers of the middle and north forks, on one side, and by the glaciers of the south fork on the other. The split dome of Kings River Yosemite is a worthy counterpart of the great Half Dome of the Merced Yosemite.

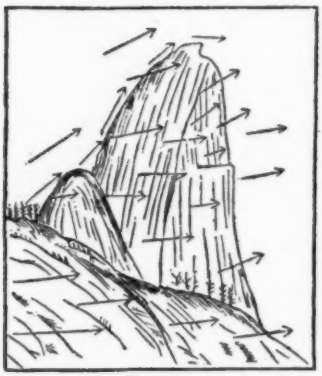

Fig. 8

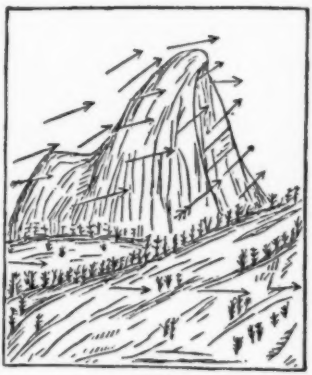

Fig. 9

They occur at about the same elevation, and are similarly situated with reference to the ancient glacial currents, which first overswept them and then glided heavily by on either side, breaking them up in chips and slabs, until fashioned and sculptured to their present condition. The Half Dome is usually regarded as being the most mysterious and unique rock form in the valley, or, indeed, in the world, yet when closely approached and studied, its history becomes plain.

From A to B, Fig. 10, the height is about 1,800 feet; from A to the base, 3,000. The upper portion is almost absolutely plain and vertical, the lower is inclined at an angle with the horizon of about 37°. The observer may ascend from the south side to the shoulder of the dome at D, and descend along the face toward A H. In the notch at F a section of the dome may be seen, showing that it is there made up of immense slabs set on edge. These evidently have been produced by the development of cleavage planes, which, cutting the dome perpendicularly, have determined the plane of its face, which is the most striking char-

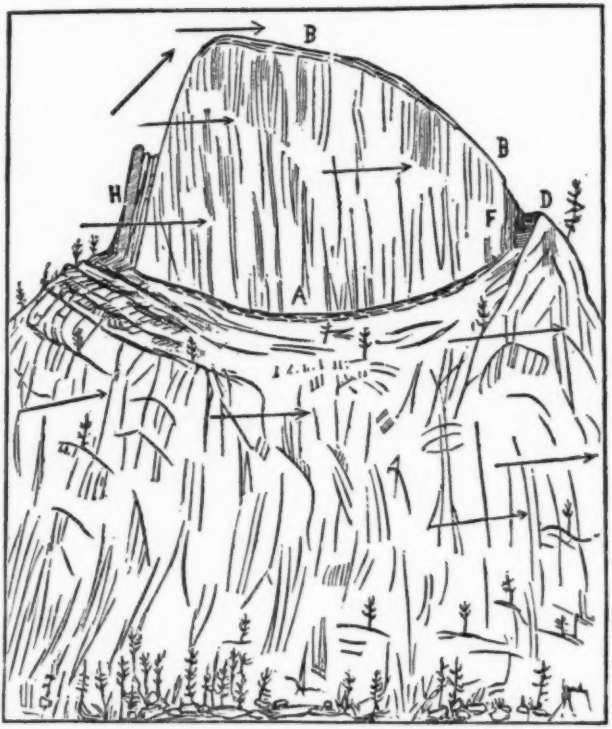

Fig. 10.—North Face of Half Dome, Yosemite Valley

acteristic of the rock. Along the front toward A H may be seen the stumps of slabs which have been successively split off the face. At H may be seen the edges of residual fragments of the same slabs. At the summit we perceive the cut edges of the concentric layers which have given the curved dome outline, B B. At D, a small gable appears, which has been produced by the development of diagonal cleavage planes which have been cut in front by vertical planes. After the passage of the main Tenaya Glacier in the direction of the arrows, small glacierets seem to have flowed down in front, eroding shallow groove channels in the direction of greatest declivity; and even before the total recession of the main glacier a wing-shaped ice-slope probably

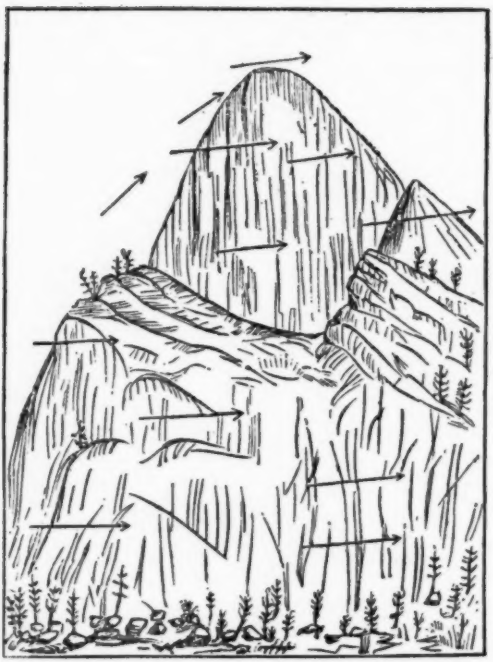

Fig. 11.—North Face of Half Dome of Kings River Yosemite Valley

leaned back in the shadow, and with slow action eroded the upper portion of the dome. All the rocks forming the south walls of deep Yosemite cañons exhibit more or less of this light after-sculpture, effected in the shade after the north sun-beaten rocks were finished.

The south side of the dome has been heavily *moutonée* by the Lyell Glacier, but is, nevertheless, nearly as vertical as the north split side. The main body of the rock corresponds in form and attitude with every other rock similarly situated with reference to ice-rivers, and to elevation above sea level, the special split dome-top being, as we have seen, a result of special structure in the granite out of which it was formed. Numerous examples of this interesting species of rock may be culled from the various Yosemites, illustrating every essential character on a gradually changing scale.

Fig. 12 is a view of the back or south side of Half Dome, Yosemite, showing its *moutonée* condition; Fig. 13 represents El Capitan of Yosemite, situated on the north side of the valley; Fig. 14, El Capitan of Big Tuolumne Cañon, near the middle, situated on the north side; Fig. 15, El Capitan of Big Tuolumne Cañon, near the head, situated on the north side.

Fig. 12

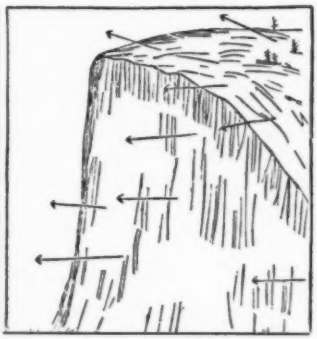

Fig. 13

Fig. 14

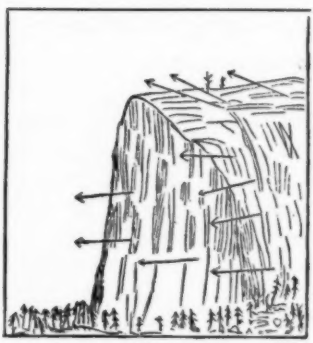

Fig. 15

The far-famed El Capitan rock presents a sheer cleaved front, over three thousand feet high, and is scarcely less impressive than the great dome. We have collected fine specimens of this clearly defined rock form from all the principal Yosemites of the region. Nevertheless, it also has been considered ex-

ceptional. Their origin is easily explained. They are simply *split ends of ridges which have been broken through by glaciers.*

For their perfect development the granite must be strong, and have some of its vertical cleavage planes well developed, nearly to the exclusion of all the others, especially of those belonging to the diagonal and horizontal series. A powerful trunk glacier must sweep past in front nearly in the direction of its cutting planes, with small glaciers, tributary to the first, one on each side of the ridge out of which the Capitan is to be made. This arrangement is illustrated in Fig. 16, where A represents a horizontal section of a Capitan rock, exposing the edges of the cleavage planes which determined the character of its face; B, the main glacier sweeping down the valley in front; and C C, the tributaries isolating it from the adjacent softer granite. The three Capitans figured stand thus related to the glaciers of the region where they are found. I have met with many others, all of which are thus situated, though in some instances one or both of the side glaciers had been wanting, leaving the resulting Capitan less perfect, considering the bold advancing Yosemite Capitan as a typical form.

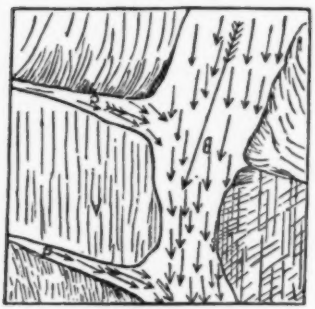

Fig. 16

When the principal surface features of the Sierra were being blocked out, the main ice-sheet was continuous and moved in a southerly direction, therefore the most perfect Capitans are invariably found on the north sides of valleys trending east and west. The reason will be readily perceived by referring to Fig. 8 of No. 1, "Mountain Sculpture," in *Overland* for May.*

To illustrate still further how fully the split fronts of rocks facing deep cañons have the angles at which they stand measured by their cleavage planes, we give two examples (Figs. 17 and 18) of leaning fronts from the cañon of the north fork of the San Joaquin River. Sentinel and Cathedral rocks also are found in other glacial cañons, and in every instance their

* Sierra Club Bulletin, Vol. IX, No. 4, page 233.

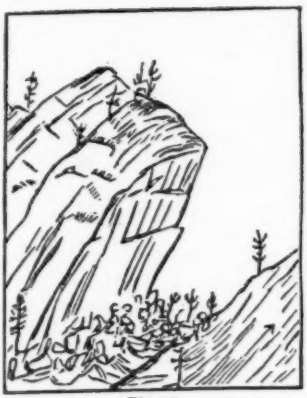

Fig. 17

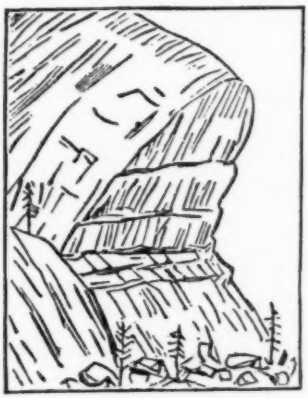

Fig. 18

forms, magnitudes, and positions are obviously the necessary results of the internal structure and general mechanical characters of the rocks out of which they were made, and of the glacial energy that has been brought to bear on them. The abundance, therefore, of lofty angular rocks, instead of rendering Yosemite unique, is the characteristic which unites it most intimately with all the other similarly situated valleys in the range.

SIERRA CLUB

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Annual Dues: $3.00, (first year $5.00)

THE PURPOSES OF THE CLUB ARE:

To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada.

John Muir, President 1892 to 1914

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SIERRA CLUB BULLETIN

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EDITORIALS

THE PRESIDENCY OF THE CLUB

Since the organization of the Sierra Club in eighteen hundred and ninety-two there has been but one President—John Muir. A year ago his death left vacant the office which he filled so long and so ably. Professor J. N. Le Conte has been chosen by the Board of Directors to serve as his successor. There is fitness in this choice. The files of the SIERRA CLUB BULLETIN bear distinguished testimony to his work as a mountaineer and explorer of the Sierra Nevada. Of the present Board of Directors he is the one who has seen the longest term of service. He was one of the charter members of the Sierra Club, together with his father, Joseph Le Conte. who was in his day the most distinguished geologist of the Pacific Coast. In the office of treasurer, to which Mr. Le Conte was elected in eighteen hundred and ninety-nine, he is now succeeded by Mrs. Marion Randall Parsons.

W. F. B.

JOHN MUIR AND JAMES BRYCE

Members of the Sierra Club will read with pride and pleasure the fine tribute paid to our late President, John Muir, by the distinguished author, diplomat and fellow mountaineer, Sir James Bryce. In his letter to the Editor, Dr. Bryce refers to his meeting with Mr. Muir on the occasion of a dinner given by the Directors of the Club in the autumn of 1912. "It was a very great pleasure to me," he writes, "to have had that talk with him and the rest of your party on that evening in San Francisco when I was returning from Australia. . . . How often since have I thought of it and wished that your city was not seven thousand miles from here! It is a pleasure to think that our friend's name and services to the world will be commemorated by those superb woods on the slope of Tamalpais which are called after him." Dr. Bryce was President of the British Alpine Club from 1899 to 1901.

W. F. B.

MOUNTAINEERING AND THE WAR

From the wide-spread ruin wrought by the great European war, mountaineering clubs, also, have not been exempt. Although the famous Swiss Alpine Club had an accession of over a thousand members during the past year, its treasury has become so depleted that very little could be done to establish new alpine cabins or to repair old ones. There was found to be a deficit at the end of the year, and for the first time in nearly fifty years no "Year Book" is to be published.

The Alpine Clubs of Great Britain, France, Italy, Germany and Austria are prostrated by the scourge of war, and their memberships will be

found sadly depleted when it finally ends. For most of the mountain regiments of the various combatants were in considerable part composed of alpinists. Foremost among the Italian army leaders stands the Duke of Abruzzi, Prince Luigi Amadeo, who has an enviable record of exploration and first ascents. Eighty-two members of the British Alpine Club are now at the front, and six have been killed in action. W. F. B.

NATURAL HISTORY SURVEY OF YOSEMITE NATIONAL PARK

In a previous BULLETIN we have called attention to a natural history survey of Yosemite National Park which has been undertaken by the Museum of Vertebrate Zoology of the University of California. The Sierra Club has a deep interest in the completion of this survey and has sought to encourage it both officially and through assistance rendered by individual members. It is gratifying to learn from Director Joseph Grinnell that a large amount of material and data have been gathered which will be utilized in the preparation of the following separate reports: "(1) a technical paper on the systematic status and relationships of the lesser known vertebrate species of the region; (2) a scientific treatise on the problems in animal distribution brought to light by the field explorations; and (3) a semi-popular account, in book form, of the natural history of the birds, mammals, reptiles and amphibians of the Yosemite region, to be illustrated, and to include a discussion of animal life as an asset of National Parks." Members of the Club and all who go into the High Sierra have a natural interest in the only poisonous reptile of the region. It is known that rattlesnakes do not occur in the higher parts of the Sierra Nevada, but it is very desirable that a map be prepared for publication showing accurately their range in the Yosemite Park. To this end members of the Sierra Club and others who have been in the Yosemite National Park are invited to report all their encounters with rattlesnakes, giving exact locality, altitude, date, and any exceptional circumstances. This information should be sent to Director Joseph Grinnell at the University of California. W. F. B.

NATIONAL PARK AFFAIRS

Every one who has the welfare of the national parks at heart should "put his shoulder to the wheel" and help to pass the bill now pending before Congress and providing for a national park service. Practically every one is agreed that this is eminently desirable, but Congressmen must be impressed with its importance. Therefore, let each one write to as many Senators and Representatives as possible, and especially to those of his own district, urging the importance of passing such a measure. Do it now before the inclination is forgotten, for here is a chance to help materially. The terms of the bill are to be found in Notes and Correspondence of this issue.

The good work inaugurated by Stephen T. Mather as assistant to the Secretary of the Interior, goes on. His task has been a monumental one.

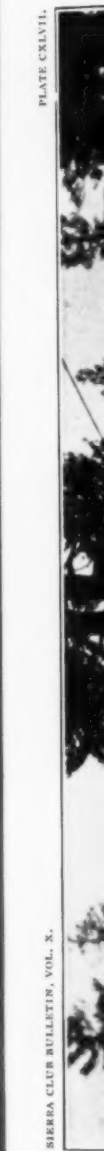


PLATE CXLVII.

SIERRA CLUB BULLETIN, VOL. X.

THE PARSONS MEMORIAL LODGE, TUOLUMNE MEADOWS
Photo by Raymond H. Bailey

INTERIOR OF PARSONS MEMORIAL LODGE DURING CONSTRUCTION
Photo by Marion Randall Parsons

PARSONS MEMORIAL LODGE, CLOSED FOR THE WINTER
Photo by Tracey I. Storer

To bring order out of chaos and place the control and administration of all the national parks on a firm working basis is no small undertaking, especially when the red tape of Washington makes difficult even simple innovations. Mr. Mather has kindly consented to tell us elsewhere in this issue something of what he has done and is trying to do, but only those who have followed his work closely realize how much he has accomplished and how hopeful he is making the future outlook for the parks. We owe it to him and the private sacrifice he is making to carry on this work, to do all we can to pass the National Park Service Bill, and thus perpetuate this unification of management which he is building up and which may all be lost later on without such an established service.

As another step in the right direction, we note with profound satisfaction the appointment of Robert Bradford Marshall as General Superintendent of National Parks. Mr. Marshall succeeds Mr. Mark Daniels, who during his term of office accomplished much good in the way of suggesting plans for harmonious structures within the parks and the laying out of roads with the best landscape ideas in mind. The pressure of private engineering practice compelled Mr. Daniels to tender his resignation. Mr. Marshall brings to this work unusual qualifications and sympathetic understanding. He has either personally mapped or supervised the mapping of all of the parks and has visited them frequently in the past. He was Chief Geographer of the Geological Survey at the time of his appointment, and unquestionably his highest indorsement is to be found in one of John Muir's letters to the Secretary of the Club when he says: "I'm delighted we are to see Marshall. The best fellow of them all."

A bill is pending in Congress for the creation of a national park embracing the Grand Cañon of the Colorado, which all agree should be done. Another bill providing for the enlargement of the Sequoia National Park by adding the wonderful Kern and Kings River region lying to the east and north, will shortly be introduced and its passage should be urged by our members. This will embrace the Kern River Cañon, South Fork of Kings River Cañon and Tehipite Valley, all of them Yosemite-like valleys, and also countless wonderful features such as Mt. Whitney, the highest mountain in the United States. John Muir during his lifetime heartily indorsed this plan. The grazing and other interests in this proposed area must receive some protection and the bill will doubtless provide for this, but speaking comparatively, the scenic assets of this region far outweigh the commercial uses to which it might be put. It needs roads to make it accessible and usable, and the park control is much more likely to provide the needed money for this purpose.

W. E. C.

REPORTS OF COMMITTEES

REPORT ON 1915 OUTING

The 1915 Outing was a radical departure from the usual summer trips taken by the Club. Instead of moving the main camp and having the entire party travel over a rather comprehensive itinerary, a central camp in the Tuolumne Meadows on the Soda Springs property controlled by the Club was selected instead. From this camp side trips were taken to numberless points of interest, for in variety of attractive nearby features the Tuolumne Meadows surpasses any other campground in the entire Sierra. Another departure from our usual custom was keeping this central camp open for three months instead of the single month which usually covers the duration of our annual trips. Another smaller camp was established at Lake Tenaya for a portion of the time, since this was necessary to add to the convenience of those traveling to and from Yosemite. A camp was also established in the Yosemite Valley for a couple of weeks prior to the first of July, on which date the Soda Springs camp was opened. The Outing was certainly a success judged from the standpoint of those who enjoyed its advantages. There were more Eastern visitors than usual and their enthusiasm was unbounded. All of us were particularly impressed with the wisdom and advantage to the Club of gaining control of the Soda Springs property. Now that we have the Parsons Memorial Lodge erected there, which will probably be kept open each summer by an attendant, our members will be able to derive a distinct advantage from its acquisition. It is probably the most desirable single piece of property which could be selected in the entire Sierra. The opening of the Tioga Road has made this whole region easily accessible.

Financially the Outing was a great failure, and one of the members of the Outing Committee was obliged to advance a large sum to cover the shortage, since the By-laws of the Club will not permit any outing deficit to be made good from the regular Club treasury. This shortage is easily accounted for in the light of the experience. The attempt to keep the camp running for so long a period, with the heavy continuing expenses, whereas the attendance was more or less concentrated during a portion of this time only, and the greater counter attraction of the Exposition, which very materially reduced the attendance of our own members, explains the failure to make good the heavy initial outlay necessary to equip such a camp. It may be that some of this shortage can be recovered by either continuing a camp there in the future or by disposing of the equipment on hand.

Either the Club will have a camp there this next summer or Mr. Desmond, who has the government concession for establishing a chain

of camps throughout the park, will have a camp nearby which will be available.

The regular Club Outing in July, 1916, will be as previously announced a trip into the famous Kern River Cañon, affording an easy chance to climb Mt. Whitney and other peaks over 14,000 feet in elevation, and the party will then enter the upper basin of the South Fork of the Kings River, which is another region of wonderful surprises, with its splendid peaks, beautiful lakes, waterfalls, and some of the very best of "pure Sierra wildness." More can be seen on this trip, with greater comfort and less expense, than would be possible under any other circumstances. Those planning to take this trip should enroll now as the list is rapidly filling and the number will be strictly limited. Members of any mountain club and their relatives are welcome. An announcement giving complete details will be issued during the spring.

WM. E. COLBY, *Chairman*,
J. N. LE CONTE,
CLAIR S. TAPPAAN,
Outing Committee

* * *

REPORT ON LE CONTE MEMORIAL LODGE

The Le Conte Memorial Lodge, in Yosemite, was officially open this year from May 18th to August 26th. On account of the Panama-Pacific Exposition at San Francisco the majority of visitors were from the Eastern States. The number registering was 1800, and, although there must have been at least twice that number of visitors, there were fewer this year than usual. This, I think, was due partly to the fact that the majority did not know of the Lodge. It seems, therefore, that something should be done to inform the public of its existence. Several times people did not come in until their last day in the Valley, and expressed their regret at not knowing of the Lodge earlier.

A number of improvements were made early in the season under the direction of Professor Le Conte. The roof was repaired and the old and warped floor in front of the fireplace was replaced. The work of piping water to the Lodge was finished.

Perhaps the greatest addition this year was a set of the birds of the Yosemite lent by the "Museum of Vertebrate Zoology" of the University of California. Many visitors expressed their appreciation of this. Mr. Romeyn B. Hough donated a transparency of "Specimen Pages from American Woods." Two or three books were donated to the library.

The Lodge is in need of two or three small tables on which to place the photograph albums, etc., as those in use at present are old and dilapidated. The end walls of the wing storerooms have spread from the roof and need repairing.

Besides serving as a reading room and place of information for the

tourists of the Valley, this year the Lodge was used as the headquarters in the Yosemite Valley for the Sierra Club's Camp in the Tuolumne Meadows. Visitors to this camp could secure information at the Lodge concerning it and leave their baggage there.

The sale of maps amounted to.....$16.50
The sale of BULLETINS amounted to..... 2.50

Total.....$19.00

BAYARD BUCKHAM, *Custodian,*
MARION RANDALL PARSONS, *Chairman,*
J. N. LE CONTE,
R. M. PRICE,
Committee

. . .

REPORT ON PARSONS MEMORIAL LODGE

During the 1914 outing in the Yosemite National Park the suggestion was made that there should be some sort of enduring memorial to the late Edward Taylor Parsons, whose untimely death had so recently deprived the Club of the companionship and services of one of its most loyal members. Towards the close of the outing the suggestion took definite shape, when Mr. Russ Avery proposed at a camp-fire in Hetch Hetchy that a memorial lodge be built on the property in Tuolumne Meadows controlled by the Club. This location seemed particularly appropriate to those who knew of Mr. Parsons' enthusiasm for that particular spot and his interest in having it brought within the control of the Sierra Club. The proposition was universally approved, and during the next few months steps were taken to raise the necessary funds and to prepare for the construction of the building. Mr. Mark White rendered invaluable assistance in designing the lodge and personally supervising during the early part of its construction, and Mr. Walter L. Huber made plans covering the structural engineering. As soon as the trails were open in the summer of 1915 the materials were sent forward, and early in July the work of grading and construction was begun.

As far as possible the material was obtained from the immediate neighborhood. An abundance of just the right kind of rock for the walls was found close at hand, and logs for the roof and supports had to be hauled but a short distance. The hardware and cement, however, had to be packed in on animals by way of Yosemite, and the galvanized iron for the roof was brought in by motor truck after the opening of the Tioga Road. This roofing will later be covered with some better appearing material. A very substantial form of construction was sought in order to render it proof against the severities of winter. The walls are of rough granite, bound by a core of cement mortar. They are nearly three feet thick at the base, tapering to two feet at the top. The roof is of

hewn logs, laid side by side and covered with galvanized iron sheeting. The rafters are bolted to the walls with large iron bolts and held secure with heavy straps of iron designed for the purpose. The front door is of four-inch planks bound with special straps and hinges. The windows are fitted with heavy shutters which can be securely fastened when the lodge is closed for the season, so that equipment can be stored with more than ordinary safety. The interior is a single room, 40 by 26 feet, with two windows on each side and two smaller ones in the front wall, and a handsome fireplace at the end opposite the door. The external appearance harmonizes well with the surroundings. As a prominent architect, who has seen it, expresses it, "The building seems to grow out of the ground naturally and to belong there just as much as the neighboring trees and rocks."

This lodge will be used as a headquarters for members of the Club and probably will be in charge of a custodian during the summer months, making the Soda Springs property controlled by the Club a desirable center to visit and from which to make side excursions.

The cost of construction considerably exceeds the amount of the fund that has so far been raised for the purpose. Many of the members who contributed to this fund originally have expressed their intention of adding a further contribution, and there are doubtless many other members who will be glad to be identified with this pioneer effort towards establishing a permanent headquarters in the High Sierra. Any contributions in excess of the amount needed to make up the deficit will be applied to improvements to the lodge.

A brief summary of the cost of construction and the condition of the fund is appended:

Materials and tools	$ 490.23
Freight and express to Yosemite Valley	165.24
Transportation to Soda Springs	563.55
Labor	1,244.95
Maintenance of workmen	500.00
Miscellaneous expenses	47.51
Total	$3,011.48
Total contribution to fund	1,906.15
Deficit	$1,105.33

The deficit has been temporarily advanced by one of the committee in charge of the building.

Wm. E. Colby, *Chairman*,
J. N. Le Conte,
Wm. F. Badè,
Committee

NOTES AND CORRESPONDENCE

Edited by WILLIAM E. COLBY

THE JOHN MUIR TRAIL

During the 1914 outing of the Sierra Club, a suggestion was made by Mr. Meyer Lissner of Los Angeles that a State appropriation should be secured for building trails with which to make the High Sierra more accessible. After Mr. Muir's death, the happy idea occurred of making this appropriation a State recognition of his inestimable service in bringing the wonderful mountains of California to the attention of the world. Accordingly a bill was drafted by the Sierra Club making an appropriation of $10,000 (to be paid in two equal annual installments) with which to construct a trail from Yosemite to Mount Whitney, to be known as the John Muir Trail. In spite of adverse financial conditions, the State Legislature was persuaded by earnest work of the members of the Sierra Club, aided by several civic organizations, to pass the bill. Governor Johnson's final approval made the construction of the trail possible. It is, indeed, a most appropriate memorial to John Muir, who spent many of the best years of his life exploring the region which it will make accessible. This trail will afford a route for traveling with saddle and pack animals north and south along and near the crest of the entire High Sierra. It will begin the work of making accessible one of the grandest mountain regions on the American continent.

State Engineer Wilbur F. McClure was charged with the selection of the final route and the actual construction of the trail. Mr. McClure, after considering suggestions from the Sierra Club, from federal officials and others, made two trips over the lower part of the trail before determining its final location as follows:

> Beginning at a point on the north floor of the Yosemite Valley and running from thence by the most practicable route northeasterly to a junction with the Tioga Road at a point near Tenaya Lake; thence northeasterly and easterly along and upon said Tioga Road to a point near the Soda Springs in the Tuolumne Meadows; thence in a general southeasterly direction up Lyell Cañon to the headwaters of said cañon, to and over Donohue Pass; thence in a general southeasterly direction across Rush Creek and Island Pass to Thousand Island Lake; thence easterly and southeasterly through Agnew Meadows, Pumice Flat, past Devil Post Pile, Reds Meadows, Fish Creek Valley, over Silver Pass, and thence by the most feasible route to the north fork of Mono Creek. Thence in a general southerly direction down the north fork of Mono Creek Valley, and Mono Creek

Valley to Vermilion Valley; thence by the way of the present traveled trail southeasterly and southerly to Marie Lake and to and over Seldon Pass; thence continuing southerly and southeasterly along the valley of the south fork of the San Joaquin River to the mouth of Evolution Creek; thence continuing in a general southeasterly direction up Evolution Creek Valley, past Evolution Lake, Wanda Lake, over Muir Pass, down Le Conte Cañon to Grouse Meadow and the mouth of Palisade Creek; thence easterly up Palisade Creek Valley and over the pass between the waters of Palisade Creek and the drainage of the south fork of Kings River; thence through the Sequoia National Forest, Upper Basin, and traversing headwaters of the south fork of Kings River to the pass about one and one-half miles southwest of Mount Pinchot; thence southerly and southwesterly along Woods Creek and the south fork of same; thence by the way of Rae Lake, Glenn Pass, Bullfrog Lake and Bubbs Creek to and over an unnamed pass near Junction Peak; thence into the watershed of Tyndall Creek, and over and along the high sandy plateau and to Crabtree Meadows; thence in a general easterly direction to Mount Whitney.

For carrying on construction work, Mr. McClure wisely availed himself of the splendid organization which the Forest Service had available for supervising the work. Thus neither time nor money was spent in exploration by those unfamiliar with the region. In short, every dollar spent bought the greatest possible value. In addition considerable valuable supervision was given by forest supervisors and rangers without cost from the fund available for the John Muir Trail. The plans for cooperation between the State Department of Engineering and the Forest Service were agreed upon at a meeting held in the rooms of the Sierra Club, June 4, 1915, at which were present Mr. W. F. McClure, State engineer; Mr. Coert Du Bois, district forester; Mr. Roy Headley, assistant district forester; Mr. Paul G. Redington, supervisor of the Sierra National Forest; Mr. A. B. Patterson, superintendent of the Sequoia National Forest; Mr. W. E. Colby, secretary of the Sierra Club, and Mr. Walter L. Huber of the Sierra Club's trail committee.

The appropriation did not become available until August 8, leaving a short field season for work. However, in this short season much work was accomplished. Progress within the Sierra National Forest is well shown by Supervisor Redington's report to the State Engineer, much of which is here quoted:

Report on John Muir Trail Work, for Season of 1915, Sierra National Forest

Route. The route which this trail will follow was outlined in a memorandum transmitted with the State Engineer's letter of August 12, 1915, to the District Forester. As a result of the field investigation made this year, it is believed that for the sake of economy, variety and ease

of travel, and to obtain greater scenic attractions, the stipulated route should be changed at certain points, which will be discussed in order.

1. From Grouse Meadow, which lies on the Middle Fork of Kings River, near the mouth of Palisade Creek, the official routing of the trail is specified as: "Thence easterly, up Palisade Creek Valley and over the pass between the waters of Palisade Creek and the drainage of the south fork of Kings River." No old trail exists over the pass in question, although a rough trail ascends Palisade Creek from its mouth to the mouth of Cataract Creek.

Following a conference between the State engineer, Forest Service officials and representatives of the Sierra Club, when the status of the trail work previously done on the route up the Middle Fork of Kings River from Simpson Meadow, by funds furnished by Fresno County, the Sierra Club and the Forest Service, was explained, no work was planned up Palisade Creek, since it was impracticable to get an outfit there from the Owens River country, and impossible to move the trail crew at work lower down on the Middle Fork, up to the mouth of Palisade Creek. Later, the situation not having apparently been understood, the matter was taken up in detail by correspondence, and the State engineer authorized the continuance of the work on the Middle Fork trail, as preliminary to the work which would finally be undertaken from the mouth of Palisade Creek, east. Eventually the route over the pass at the head of Palisade Creek may be constructed. It has seemed to the Forest officers, however, since a good trail already exists from the South Fork of Kings River up Copper Creek, over Granite Pass, down to Simpson Meadow and thence up the Middle Fork to within 1¼ miles of the mouth of Palisade Creek, that for the present at least the existing trail spoken of should be improved, and the new trail from Cartridge Creek to Palisade Creek should be finished. It will cost less money, so far as we can ascertain with certainty, to put the trail through to Palisade Creek than to put a trail up Palisade Creek and over the pass at its head at an elevation of 12,500 feet. Granite Pass, on the lower trail, can be crossed earlier in the year than would be possible on Palisade Pass, and the lower trail takes the traveler from Palisade Creek down the magnificent cañon of the Middle Fork, across a spectacular gorge near the mouth of Cartridge Creek, and into splendid camping for man and beast at Simpson Meadow. The travel is varied, far more than would be the case if the route over Palisade Pass was followed. With available funds somewhat limited in amount, keeping in mind the comparative maintenance cost, and with the desirability of making a long connected piece of safe trail for the least expenditure of money, it is recommended that the Palisade-South Fork unit be dropped from consideration until the balance of the work has been completed on the entire project.

2. The second material change recommended is toward the northern end of the trail. The present route from Agnew Meadows to Thousand

PLATE CXLIX.
SIERRA CLUB BULLETIN, VOL. X.

PARSONS MEMORIAL LODGE DURING CONSTRUCTION
Photo by Herbert W. Gleason

Building suspension bridge over Piute Creek near Pavilion Dome

Trail Near Seldon Pass, North of Blaney Meadows
CONSTRUCTION WORK ON JOHN MUIR TRAIL.

Island Lake leads through average mountain country. If changed as suggested it will take the traveler by the shores of three of the most picturesque lakes in the entire region (where splendid fishing of golden trout will be possible in 1917), and will give him a close view of the Minarets and Mounts Banner and Ritter. The expense to put this trail through will not exceed that necessary to establish a trail on the other route.

Trail Near Seldon Pass, North of Blaney Meadows
CONSTRUCTION WORK ON JOHN MUIR TRAIL

METHODS OF WORK

Supervision. The Middle Fork of Kings River unit of this year's work was supervised by District Ranger Roy Boothe. He went in at the start, visited the project again with the supervisor from August 5 to 9, when the work being done was inspected and a reconnaissance of the proposed route of the trail from Palisade Creek to Muir Pass was made. He went again, in October, to help bring the crew out.

The Muir Pass-French Cañon unit was supervised by District Ranger Frank Price, and during a large part of the work Assistant Ranger Mark Cathey was with the crew. Price was on the job three times, working himself for over a week with the men. The supervisor visited this project in the latter part of July, going over the route from Blaney Meadow to Muir Pass. Later, in September, he inspected the work being done and went over the proposed route of the trail from Blaney Meadow to the head of Fish Creek. He had in previous years gone over the route from Reds Meadows north to Island Pass.

Deputy Supervisor Jordan, in September, went over the proposed route from Reds Meadows to the head of Fish Creek. With the exception, therefore, of the stretch from the mouth of Palisade Creek to the pass at its head, the entire route of the trail within the Sierra Forest, as outlined by the State Engineer, has been gone over, and the situation ahead is thoroughly known to the supervising officers.

Crews. Two crews were employed, one in the Middle Fork of Kings River, the other on the Muir Pass-French Cañon unit. Number of men in crews was eight, including foreman and cook. Wages paid foreman, $3.00 per day and board; laborers, $2.00 per day and board; cook, $60.00 per month and board. The foremen selected were men of experience in handling crews and in trail work. The foreman of the crew in the Middle Fork of Kings River, Sylvester Dehl, was chosen because of his experience also in rock and powder work.

Transportation. The men walked to the job. Materials and supplies were taken into camp on pack animals. Informal bids were obtained from packers prior to start of work and lowest price accepted. Prices, $1.00 per day for pack and saddle horses; $2.00 per day for packer, one packer taking care of six animals. Each animal packed a minimum load of 150 pounds. The schedule of travel was determined by Forest officers and the packers were paid for the schedule time.

The proportion of the packing charge on a job of this kind to its total cost will always be high on account of distance from supply points.

Supplies. Formal bids on all supplies and materials needed in connection with the job were obtained prior to start of work, and supplies were purchased in accordance with the specifications of the accepted bid. The tools, equipment, etc., were, upon completion of the season's work, cached in safe places convenient to the start of work for another year. The food supplies were practically all consumed.

Trail Specifications. Tread, 30 inches minimum width. Plenty of turnouts provided in dangerous places. Grade in no case except under extraordinary conditions exceeding 15 per cent. The exceptions so far as noted were extremely few.

Where grading work was done, ample clearance for packs was made in cuts, and in timber country six feet clearance between trees was obtained. Trail was placed, so far as possible, out of the way of slides, in order to decrease cost of up-keep.

Monuments or trail blazes were placed close together, in no case more than the distance of a chain apart. Generally all prominent trees along the trail were blazed, the standard blaze of the Forest Service, which consists of one long blaze with a notch above it, being used. In the country above timber-line, monuments of large size were placed. Boggy ground was avoided as far as possible. Sufficient overhead brushing was done to allow of clearance of rider on horse of average height. Care was taken where trail traversed slick rock to chink crevices closely.

Powder. The powder used on the Middle Fork of Kings River unit was Hercules 40 per cent; that on the Muir Pass-French Cañon unit was Trojan 40 per cent. Next year it is planned to use 60 per cent powder in the hard-rock work.

Bridges. One bridge, that across the mouth of French Cañon, was built. This bridge is one of the most important features of the entire project.

Recommendations. It is recommended that if we continue to work another year, we be notified at the start of the work of any overhead to be charged against the season's allotment by the State Engineer's office.

It is also recommended that all checks for labor be sent to the addresses of the individuals listed on the payrolls, or if this is not feasible, to the Forest Supervisor at his official address. This year checks were sent in one instance in care of the man who happened to have signed the payroll as acting supervisor. He was on leave, and delivery of the checks was delayed until the rangers felt it wise to avoid the neighborhood of the men who had money coming to them. In a sense the Forest Service, in having field charge of the work, is looked to for payment, and delay therefore is blamed to the field officers. This is not fair and can be avoided next year by following the above recommendation.

We shall keep in mind the State Engineer's suggestion of obtaining outfits from the east side of the mountains. The feasibility of this is

doubted, since we could not satisfactorily pick our personnel and would have to hire unknown packers. Furthermore, the summit passes cannot usually be crossed by animals in June, when we would want to start work, and could get to the job readily from this side.

Acknowledgment.—I desire to place on record my appreciation of the interest taken in the work by the men engaged in it, with particular reference to Forest Rangers Roy Boothe and Frank Price and Assistant Ranger Mark Cathey. The task of overseeing the packing of powder, steel, supplies, etc., over difficult mountain trails, and of handling men, the best of whom grow sick and tired of the isolation and monotony of camp fifty to seventy miles from civilization, is no small one and requires lots of patience and tact. I am glad to say that the work was so handled that many of the men who worked on the job this summer, and who are experienced, have asked to be considered for employment next season. Respectfully submitted,

PAUL REDINGTON,
Forest Supervisor

Northfork, California, November 22, 1915.

* * *

REPORT ON JOHN MUIR TRAIL WORK, SEQUOIA NATIONAL FOREST

The route of the trail within the Sequoia National Forest was not definitely determined as early as in the Sierra National Forest, but, in the short period remaining after the final determination was made and before the close of the field season, good progress was made. The following expenditures were made for trail work within the Sequoia National Forest from the appropriation for the John Muir Trail:

Wages	$ 650.50
Subsistence supplies	209.47
Other supplies and equipment	281.50
Freight, express and hauling	104.42
Total	$1,245.89

Approximately six miles of the hardest portion of the trail is completed, and a route between Kern and Kings rivers is opened. A portion of the trail at the head of Shepherd's Creek was completed with co-operative funds (not from John Muir Trail appropriation) at an expense of $200.00. This makes the total cost of the trail $1,445.89. Of the $1,245.89 from the John Muir Trail appropriation, $76.60 was expended for camp equipment and tools, and $1,169.29 for actual trail construction. With the additional $200.00 co-operative funds, the average cost per mile for the six miles, exclusive of camp equipment, was $228.21.

Ranger Parkinson, who was directly in charge of the work, reported on October 8:

> "Saddle horses may pass from Center Basin to Tyndall Creek at the present time, but additional work will be done

> in the spring on a short portion leading from Junction Pass to Center Basin, about 50 yards in distance . . . . An excellent grade was obtained on the trail throughout, and the scenery is beyond comprehension; . . . .
>
> "Work on this trail was discontinued on September 27 on account of weather conditions, and of the fact that the workmen had to walk three and one-half miles to work.
>
> "In the spring two men will be placed in Center Basin to complete the portion to Bullfrog, two at East Fork, and five at Crabtree Meadows."

With the remainder of the appropriation a passable trail for saddle and pack animals will be completed from Yosemite to Mount Whitney during the field season of 1916. Further appropriations must be secured to construct that part of the official John Muir Trail from Grouse Meadow easterly up Palisade Creek, over the pass from Palisade Creek to the South Fork of Kings River, down the latter and thence via Rae Lake and Glenn Pass to Bubbs Creek. Additional expenditures for the improvement of many places in the trail are also desirable. It is hoped that, after the splendid work accomplished, and with increasing favorable public sentiment, additional appropriations will be secured.

. . .

Lassen's Second Year of Rejuvenation

By Ruliff S. Holway

In the Sierra Club Bulletin of January, 1915, Mr. William C. Hodge gave a brief account of the eruptions of Lassen Peak during its first two or three weeks of activity, with especial reference to the injury to the forest-fire lookout house which had been placed on the highest point of the mountain. The eruptions during the remainder of the year 1914 were on the average about as frequent as those during the first month of activity, but the maximum intensity as measured by the height of the column of steam and ash became approximately twice as great. From July to October, inclusive, in one or more eruptions of each month, the ejected ash column rose to estimated heights of 10,000 to 12,000 feet above the crater. By October, 1914, the new crater was reported as being 900 feet in length and much more rounded in outline, the area of the opening being some five times as great as at the end of June.

Some further idea of the magnitude of the eruptions may be gained from the record of distant observers. A letter from Professor Charles F. Shaw, who was at Amadee, about sixty-five miles eastward from Lassen Peak on October 23, 1914, contains particularly interesting observations. The eruptions began at 5:40 P. M. The crest of the mountain showed plainly over the tops of the nearer hills, and the smoke of the eruption was clearly silhouetted against the western sky, extending directly upward from the peak.

"The smoke rolled up until practically the entire height (12,000 feet) was reached before any change in form occurred, when just below the top of the column there was a tendency to stratification, and a layer extended out toward the south and toward the north. When this appeared, the smoke column began to lean toward the north and, from our point of vision, apparently toward the northeast, and with this inclination of the column distortion took place, the upper part spreading out into streamers. As soon as the inclination of the smoke column became very plain, we could readily distinguish indications of falling material. The lower two-thirds of the column seemed to be dropping some material that was falling in a slightly oblique line, the obliqueness pointing back toward the mountain peak. As the eruption continued and the smoke column blew out more toward the north, the streaked condition indicating falling material became more and more apparent."

So far as known to the writer, no one reached the summit of Lassen during the interval from October, 1914, to March 15, 1915. On that date Mr. George Olsen and Mr. Charley Yori, who remained during the winter, the one at Chester, the other at Drakesbad, made the ascent, using skis for the greater part of the way. Their report indicated some enlargement of the crater since October, but the general shape and appearance were still the same.

Accompanying Mr. Hodge's article was a tabular list of eruptions, closing with No. 53, October 7, 1914, compiled by Forest Supervisor W. J. Rushing. Mr. Rushing has kindly furnished the list as continued by him to Nov. 22, 1915, to which date 132 eruptions are catalogued. Mr. Rushing has done a valuable service in compiling this list, which is undoubtedly the best record available. It is well, however, to remind those not acquainted with the topography and the winter climate of that sparsely settled region that no list of eruptions can be complete, since the surrounding peaks and ridges shut off the view from several of the few near-by stations, particularly from the station nearest, which is seven miles away. During winter clouds frequently prevent observations from some directions and not from others, or shut off entirely any view from near or far. Mr. Olsen at Chester, about twenty miles away in an air line, was fortunate in having no hills to obstruct the view. From November 11, 1914, to May 13, 1915, he reports over forty eruptions with many cloudy periods intervening. During the same period Mr. Rushing reports 16 eruptions not observed by Mr. Olsen, and does not mention nineteen seen by Mr. Olsen. It seems therefore very probable that the average number of eruptions per month during the winter approximated that of the preceding summer.

During the summer of 1915 the most spectacular eruptions and the most interesting, scientifically, occurred on May 20 and 22. These eruptions marked the culmination of nearly three weeks of activity, for Mr. Olsen's record shows constant eruptions all day May 4, 5, 6 and 7. Clouds then prevented further observation until the thirteenth, when a short period of clear sky revealed another eruption; after six more days

of storm a temporary break in the clouds showed Lassen in an active state on the nineteenth. The eruption during the night of May 20 resulted in the flood which swept down Hat Creek on the morning of May 21. The first telegraphed reports regarding this eruption told of molten lava flowing down the mountain sides and of streams of mud ejected from the crater itself, but the fact is now well established that the matter actually ejected from the crater consisted largely of rocks and ashes and of very hot steam.

This eruption was markedly different from preceding eruptions in that the column of steam and ash, instead of being projected upward as usual, was directed obliquely down the slope of the mountain. Evidently the throat of the crater had been choked by debris and from under the edge of this lid the explosion forced the steam and highly heated rock and ashes down upon the great mass of snow lying on the northeasterly slope of the mountain; the resultant rapid melting produced the sudden flood which swept down Hat Creek on the morning of May 21. The actual damage to the main farming which lies fully twenty miles to the northward of Lassen Peak was greatly exaggerated in the early reports. In fact in the lower valley it is highly probable that the value of the fertilizing action of the mud more than compensated for the damage of the flood. But at the foot of the mountain and along the headwaters of Hat and Lost creeks no description nor photographs can adequately express the feeling of desolation experienced when one sees the destruction of the natural features of these valleys. The downward blast leveled the forest as if it were no more than a grain field. That the trees were blown down and not broken off by the flood which followed is shown by Plate CLII, where trees leveled by the blast lie above the highest flood line. The needles of the pine trees standing on the borders of the sharply defined path of the blast were killed by the heat of the steam and ashes.

Another feature of this eruption that has received but scant attention is the narrow fan-shaped belt of rock fragments projected for miles across the country in the direction of the Hat Creek blast. At Hat Mountain fragments ranging in size from dust particles to pieces seven inches long covered the snow on the old crater rim (Plate CLI). At Cinder Cone they were found "as large as hen's eggs" and twenty miles away about the size of ordinary marbles. At Eagle Lake, some forty miles distant from Lassen, the lapilli were of the size of coarse sand.

At the time of these eruptions the snow on Lassen Peak was so deep that it was not until May 27 that the actual crater was finally reached. In this first party were Mr. David Durst, from Susanville, and Mr. William G. Reed and the writer, from the University of California. Even with the skilful guidance of Charley Yori, of Drakesbad, in picking a path among the snowdrifts, which covered rocks and gullies alike, the party was six hours on horseback making the six miles to the little plateau at the southeast base of the final peak.

Having in mind the new chasm which yawned in the middle of the ancient crater, on climbing to the rim we were astounded to see an al-

most level plateau of ugly bare rocks, with hissing steam escaping from the many cracks and crevices, and over all the shimmering air indicating the heat below. Strange as it may seem, those of the party who had visited the crater before found this uplifted mass of old lava more awe-inspiring than the former depths of the crater, leading downward to the internal forces which had produced the great explosions.

Closer inspection revealed the fact that the crater had not been filled by ejected material, but that the entire mass had been shoved bodily upward (Plate CLI). The old crater rim sloped downward some twenty feet and there met the almost vertical wall of the uplifted center with a strip of talus at its foot. Photographs taken later of the southwest and northwest slopes show the dark rocks of the uplift filling the well-known notches in the old crater rim, notches which prior to May, 1915, gave, from some points of view, the impression of two separate peaks.

Interest in the eruptions occurring during the remainder of 1915 rests largely in the question whether they indicate that the volcano is becoming quiescent once more. Professor Diller of the United States Geological Survey has expressed the opinion that the great outbursts in May spent the present energy of the volcano and that it will again become dormant. The writer was at first apprehensive that Professor Diller's opinion was correct, but hope for continued activity is not yet lost. Eruptions have occurred at rather frequent intervals throughout the summer and fall. Many of them have thrown columns of steam and ash to a height of several thousand feet. The eruption during the night of October 30, 1915, was sufficient to cause a fall of ashes at Susanville, forty miles away, as attested by Mr. David Durst, principal of the High School at that place. The *Shasta Courier* of November 2 reports an eruption seen from Redding on November 1, "the most spectacular since May 22," and estimates the ash column as 10,000 to 12,000 feet in height.

One further question should be discussed, and that is the one so often asked: "Has any *real lava* been thrown out? Large quantities of real lava which in a former period cooled and became solid down in the throat of the volcano have been ejected, but there is no evidence that molten lava has flowed from the crater during the present period of activity. It is of course self evident that some source of great heat has existed within the volcano for the past two years. Several of the reports that hot rocks or luminous rocks have been seen during eruptions occurring at night are too reliable to be discarded. The following extract from a letter from Miss Inez Hyatt of Sacramento, whose party was camped at Manzanita Lake, scarcely five miles from the top of Lassen Peak, is clear and definite in its testimony.

"We really did see a wonderful eruption at ten o'clock at night, June first (1915), when red-hot material shot up, looking very much like flames, and we clearly saw one huge red-hot rock roll down the slope toward Manzanita Creek. There were other rocks, too, which lodged, I suppose, near the top, but this one big rock shot far down beyond the rest. Then a big cloud of black smoke came out and hung like a big

balloon over the mountain for fifteen minutes and then disappeared. It was an ideal night, dark, but clear so that all the stars were out."

Subsequently Professor Diller found rocks in that vicinity which seemed to have been recently fused on their surface. It would seem to be a reasonable conclusion, then, that molten lava, whether actually ejected or not, has been nearer the surface than usual during the recent renewal of volcanic activity.

During the present winter it is not probable that many reliable observations of the crater can be made, but the general public as well as the physiographer will await with interest the coming of another summer, which will give the opportunity to learn whether the volcano is really declining in activity or whether the slowly accumulating stress of the internal forces of the earth is to be relieved by an eruption greater than any of the past two years. It may be said, however, that downward blasts from volcanoes are relatively scarce and that the probabilities are against the repetition of the particular combination of circumstances which produced the Hat Creek flood.

June 28, 1914. View across ancient crater from southern rim, showing new crater with escaping steam

May 27, 1915. From approximately same position, showing chaotic mass of old lava uplifted and filling the former craters

CHANGES IN CRATER OF MOUNT LASSEN

Photos by R. S. Holway

DESTRUCTION OF TIMBER BY MUD-FLOW FROM MOUNT LASSEN

These areas were originally heavily forested. Note trees above line of mud-flow which were felled by steam blast

Photos by R. S. Holway

NATIONAL PARK NOTES

National Parks—The Federal Policy, Past and Future*

To My Fellow-Members of the Sierra Club:

At the request of Mr. William E. Colby, your secretary, I am glad to give you a statement for the Sierra Club Bulletin of my stewardship over the National Parks during the past year, and something of the plans that the Department of the Interior has outlined for the coming year.

The *Yosemite National Park*, in which the Sierra Club is more vitally interested than any of the others, has seen much interesting development during the past year. The most important has been securing and rebuilding the old Tioga Road, reaching some forty-five miles across the Park, from the west to the east side. Over $30,000 has been spent during the past season in putting this road in condition, constructing new bridges, putting in culverts, and general surfacing work. It is now passable to automobiles and is already an important link in the transcontinental travel, besides opening up portions of the Park that have hitherto been practically inaccessible to the ordinary tourist. The development of the road has been accompanied by close co-operation with State Engineer W. F. McClure. The State purchased the east and west ends of the Tioga Road and Mr. McClure promptly went ahead with the necessary work to put these sections into good condition, which made it possible to open up the whole road by the twenty-eighth of July last. In the estimates of appropriations for the coming year the Department of the Interior is asking for $75,000 for the further improvement of the Tioga Road. If Congress makes this appropriation the Department will arrange for regrading a number of points along the road, particularly at the crossing of Yosemite Creek. With the additional work which the State intends to do on their portions, the end of next season should make the Tioga road a perfect mountain highway, with grades that any car of moderate power can negotiate, and with scenery along the route that will be the equal of any in the land.

The Big Oak Flat Road has been purchased by Tuolumne County and the portion within the Park given to the United States by the county authorities. This leaves the Wawona Road as the only toll road in the Park. The State authorities are arranging for the rebuilding of the portion of the Big Oak Flat Road outside the Park, and surveys have been made for the relocation at a point where it enters the Park near the Tuolumne Grove of Big Trees. A survey has been made by State and

* The Assistant to the Secretary of the Interior, Mr. Stephen T. Mather, has kindly written this comprehensive statement at our request. [W. E. C.]

National authorities in co-operation, and the heavy grades along the portion of the road just west of Crane Flat will be eliminated. $20.000 is being asked for the improvement of this road for next year. Congress is also being asked for $110,000 to make the road between El Portal and the Yosemite Valley a surfaced boulevard, with a width of twenty-eight feet. If this amount is obtained, tourists will be landed in the Valley with far greater comfort than before. The Department is also asking for $4,000 for the construction of a trail to the Waterwheel Falls of the Tuolumne River, which will make these wonderful falls readily accessible from Lake Tenaya.

Concessions have been given to the Desmond Commissary Company for a new hotel to be erected in the Valley at a cost of approximately $150,000, and a new hotel at Glacier Point to cost approximately $35,000, and the establishment of at least four chalet camps in the upper Park country. One of these is to be located at Harden Lakes, from which point a view of the superb Tuolumne Cañon can readily be obtainable; another at Lake Tenaya, and one each at Lake Merced and in the Little Yosemite Valley. These are to be followed in later seasons by the establishment of additional camps for the accommodation of tourists at low rates. The Desmond Company will establish an auto service between El Portal and the Valley, as well as on the Big Oak Flat and Tioga roads. In fact, it is planned to maintain an auto service on the Tioga Road as far as the Sierra Club camp at the Soda Spring in Tuolumne Meadows. If plans under way are developed, the service will also be maintained from Tuolumne Meadows by way of Mono Lake and Bridgeport to Lake Tahoe. A good saddle and pack horse service will also be maintained between the various camps established by the Desmond Company. Camps Curry, Lost Arrow and Ahwanee in the Yosemite Valley will be maintained as heretofore.

Mr. Mark Daniels, for the past year general superintendent and landscape engineer of National Parks, has given much personal work to the development of plans for the new Yosemite Village, which will center around the new hotel to be built under the shadow of Yosemite Falls and directly across the river from the present Sentinel Hotel. Mr. Daniels is deserving of much credit for the artistic work that he has given in the development of his plan.

I want to thank the officers of the Sierra Club, particularly your president, Professor Joseph N. Le Conte, and your secretary, Mr. William E. Colby, for the assistance they have given me in working out the varied problems of this Park. Their intimate acquaintance and knowledge of the Valley have made their suggestions and recommendations of great value.

In *Sequoia National Park* little was done in the way of important improvements during the past year, but for the next fiscal year the Department is taking an important step in asking for an appropriation of $50,000 to be expended by the Secretary of the Interior in the purchase

of private holdings in the Park. This is for the purpose of securing some of the stands of sequoias in the Giant Forest now in private ownership, provided they can be obtained at a reasonable figure. Efforts have been made in the past to appropriate for these holdings, and it is hoped that Congress this year will authorize the Secretary of the Interior to expend this proposed sum. The Department is also asking for an appropriation of $11,000 for the repair and improvement of the Mineral King Road for a distance of eleven miles across the Park. The Tulare County authorities are doing their part in improving the roads which lead to the Park entrances, and the proposed improvement of the Mineral King Road is intended to fit in with the work which they are doing.

In the *Mount Rainier National Park,* now under Supervisor D. L. Reaburn, a civil engineer of high standing, much has been accomplished during the past year. Supervisor Reaburn did particularly excellent work in handling the auto traffic to Paradise Park without a single mishap, and in putting the roads in excellent shape for the heavy travel which they received during the past season. During the fall Mr. Reaburn made a survey of the proposed new road along the Carbon River, which, when built, will open up a new entrance to the Park from the northwest corner. In the estimates for the next fiscal year the Department is asking for $46,000 for the construction of eight miles of this road, which would bring it up to the Carbon River Glacier, and also assist in making accessible the beautiful Spray Park which lies on the northwest flanks of the mountain.

Plans are well under way for a new camp hotel to be constructed in Paradise Park at the opening of the season of 1916, and much of the material is already on the ground. The Department also expects to construct next season a shelter at Camp Muir, so that the mountain climbers will have a refuge at this important point on the way to the summit.

In the *Yellowstone National Park* the most important event during the past year was the opening of the Park on August 1 to automobiles. Nearly 1,000 machines visited the Park, operating under schedule which did not bring them in contact with the horse-drawn stages. During the coming year it is expected that a number of camps for the benefit of automobilists will be established at important points throughout the Park, and an effort will be made to develop the Cody, or eastern, entrance of the Park, and, if feasible, an automobile stage service will be established from this entrance to connect with horse-drawn stages at Yellowstone Lake.

The road construction and repairs in the Yellowstone National Park are carried on by the Engineer Corps of the Army, and the War Department is asking for next year a total appropriation of $292,000. This will be used largely in further improvement of the roads, and particularly in surfacing the portion of the road from the Gardiner entrance with oil and macadam. Under Major Fries of the Army nearly $200,000 was expended during the past year, and the roads in the Yellowstone Park are

now in far better shape than ever before. Nearly all the old wooden bridges and culverts have been replaced by concrete, and the roadways straightened and widened.

In the *Crater Lake National Park* the Army engineers are also in charge of road construction, and during the fiscal year ending June 30, 1915, expended a total of $122,000. This work has made accessible to tourists a number of very interesting views of the lake along the rim, and has resulted in good roads being built to all the important entrances in the Park. The War Department is asking for $100,000 for the next fiscal year, to be used largely in surfacing the roads already completed. The hotel which has been in course of erection for some seasons is now practically finished, and if plans which the supervisor of the Park is actively pushing for a new road from Medford to the western entrance of the Park are worked out by the State authorities, Crater Lake will be accessible next season more fully than it ever has before.

The *Rocky Mountain National Park* was opened this summer and had its dedication last August under the chairmanship of Enos Mills, which was very largely attended. The State of Colorado, and the city of Denver in particular, has taken a keen interest in the development of this, the most eastern of our National Parks, and it is expected that from its accessibility the number of tourists visiting it will be much larger than visit any of the other parks.

In the *Glacier National Park* the most important development during the past year was the opening up of the new Many Glaciers Hotel at Lake McDermott. Appropriations are being asked for a total of about $45,000 to improve the roads on the east side of the Park, making these new improvements more easy of access to tourists. Congress is also being asked to appropriate $45,000 for the construction of a road along Lake McDermott, at the foot of Gunsight Pass, with the ultimate plan that a good automobile road will be built across Gunsight Pass to connect up the east and west sides of the Park.

I feel that all of the friends of the National Parks are to be congratulated in securing the services of Mr. R. B. Marshall, former chief geographer and head of the topographic branch of the Geological Survey, who now becomes superintendent of National Parks, succeeding Mr. Mark Daniels, whose personal business made it necessary for him to resign this important post. Mr. Marshall has been closely in touch with National Park work for many years and will give his close personal attention to the development of the parks. One important plan which is now under way and which will help materially in increasing an interest in the parks is the proposed Park-to-Park Highway, intended to link up the leading National Parks by good roads. Already much has been done towards the work of connecting up the Rocky Mountains and the Yellowstone National Parks by way of the Cody entrance to the latter. The people of Wyoming and Colorado are co-operating heartily on this project and every indication points to the completion of this road by next

season. It is also planned to have appropriate gateways placed at the different entrances of all the parks, and the Department will welcome any suggestions for any specific entrance. It is our purpose to have these gateways harmonize with the particular park for which they are intended. At the present time there are only two gateways of any dignity; one the Gardiner entrance to Yellowstone National Park, and the other the great gateway of cedar logs which marks the southern entrance of Mount Rainier National Park. STEPHEN T. MATHER

* * *

EXTRACTS FROM THE ANNUAL REPORT OF THE SECRETARY OF THE INTERIOR (1915.)

PLACES OF BEAUTY AS AN ASSET

In casting up the assets of the United States as a landed proprietor I have made no mention of one of the most delightful of our national enterprises. To build a railroad, reclaim lands, give new impulse to enterprise, and offer new doors to ambitious capital—these are phases of the ever-widening life and activity of this Nation. The United States does more; it furnishes playgrounds to the people which are, we may modestly state, without any rivals in the world. Just as the cities are seeing the wisdom and the necessity of open spaces for the children, so with a very large view the Nation has been saving from its domain the rarest places of grandeur and beauty for the enjoyment of the world.

And this fact has been discovered by many only this year. Having an incentive in the expositions on the Pacific Coast, and Europe being closed, thousands have for the first time crossed the continent and seen one or more of the national parks. That such mountains and glaciers, lakes and cañons, forests and waterfalls were to be found in this country was a revelation to many, who had heard but had not believed. It would appear from the experience of this year that the real awakening as to the value of these parks has at last been realized, and that those who have hitherto found themselves enticed by the beauty of the Alps and the Rhine, and the soft loveliness of the valleys of France, may find equal if not more stimulating satisfaction in the mountains, rivers, and valleys which this Government has set apart for them and for all others.

It may reconcile those who think that money expended upon such luxuries is wasted—if any such there are—to be told that the sober-minded traffic men of the railroads estimate that this year more than a hundred million dollars usually spent in European travel was divided among the railroads, hotels, and their supporting enterprises in this country.

During the year a new national park of distinction and unusual accessibility has come into existence. It crosses the Rockies in Colorado at a point of supreme magnificence; hence its title, the Rocky Mountain National Park. Through it, from north to south, winds the Continental

Divide—the Snowy Range in name and fact. Two hundred lakes grace this rocky paradise, and bear and bighorn inhabit its fastnesses. It has an area of 350 square miles and lies only 70 miles from Denver. Many hotels lie at the feet of these mountains and three railroads skirt their sides.

This is Colorado's second national park, the other being Mesa Verde, where this department, with the assistance of Dr. Jesse Walter Fewkes, of the Smithsonian Institution, has uncovered during the last summer prehistoric ruins of unprecedented scientific interest.

Oregon has but recently completed a great highway along the Columbia River. This should be connected by road with Mount Hood and a portion of the present forest reserve converted into a park. The limits of Sequoia Park, in California, the home of the great redwoods, should be so extended as to include the Kern River Cañon, a most practicable project today, but tomorrow may be too late because of the lumber interests. The Grand Cañon is not yet part of the park system, although as part of a national forest it comes under the control of the Department of Agriculture.

There is no reason why this Nation should not make its public health and scenic domain as available to all its citizens as Switzerland and Italy make theirs. The aim is to open them thoroughly by road and trail and give access and accommodation to every degree of income. In this belief an effort has been made this year as never before to outfit the parks with new hotels which should make the visitor desire to linger rather than hasten on his journey. One hotel was built on Lake McDermott, in Glacier Park, one is to be built immediately on the shoulder of Mount Rainier, in Paradise Valley, another in the valley of the Yosemite, with an annex high overhead on Glacier Point, while more modest chalets are to be dotted about in the obscurer spots to make accessible the rarer beauties of the inner Yosemite. For with the new Tioga road, which, through the generosity of Mr. Stephen T. Mather and a few others, the Government has acquired, there is to be revealed a new Yosemite, which only John Muir and others of similar bent have seen. This is a Yosemite far different from the quiet, incomparable valley. It is a land of forests, snow and glaciers. From Mount Lyell one looks, as from an island, upon a tumbled sea of snowy peaks. Its lakes, many of which have never been fished, are alive with trout. And through it foams the Tuolumne River, which in a mile drops a mile, a water spectacle destined to world celebrity. Meeting obstructions in its slanting rush, the water now and again rises nearly perpendicularly, forming upright foaming arcs sometimes 50 feet in height. These "water wheels," a dozen or more in number, will be accessible next summer by a trail to be built when the snow melts in June.

While as the years have passed we have been modestly developing the superb scenic possibilities of the Yellowstone, nature has made of it the largest and most populous game preserve in the Western Hemisphere. Its great size, its altitude, its vast wilderness, its plentiful waters, its fa-

vorable conformation of rugged mountain and sheltered valley, and the nearly perfect protection afforded by the policy and the scientific care of the Government have made this park, since its inauguration in 1872, the natural and inevitable center of game conservation for this Nation. There is something of significance in this. It is the destiny of the national parks, if wisely controlled, to become the public laboratories of nature study for the Nation. And from them specimens may be distributed to the city and State preserves, as is now being done with the elk of the Yellowstone which are too abundant, and may be later with the antelope.

If Congress will but make the funds available for the construction of roads over which automobiles may travel with safety (for all the parks are now open to motors) and for trails to hunt out the hidden places of beauty and dignity, we may expect that year by year these parks will become a more precious possession of the people, holding them to the further discovery of America and making them still prouder of its resources, esthetic as well as material.

NATIONAL PARKS AND RESERVATIONS

The creation of the Yellowstone National Park in Wyoming, Montana and Idaho by the act of March 1, 1872, marked the beginning of a policy on the part of Congress of setting aside tracts of land as recreation grounds for all the people. Since that time 12 additional national parks have been established in various sections of the country, the latest being the Rocky Mountain National Park, in Colorado, which park was opened to the public last June. The total amount of land embraced in these reservations is 4,665,966.25 acres. To these parks should be added as speedily as possible the Grand Cañon of the Colorado River, with its wonderful scenic features.

Visitors: The interest of the general public in these national parks has been clearly evidenced by the large number of requests for literature regarding them. During the season just closed there has been very marked increases in the number of tourists visiting these national playgrounds. In the Yellowstone National Park in 1914 there were 20,250 visitors, and this year two and one-half times as many—51,895. Yosemite National Park in California had 33,452 visitors during the 1915 season, whereas in 1914 only 15,145 persons visited the park. Again, in Mount Rainier National Park, Wash., there has been an increase in the number of visitors of over 100 per cent—35,166 in 1915 as against 15,038 in 1914.

Economic value of national parks: Leaving out of consideration the cost to visitors of transportation from their homes to the parks, a fair idea of the economic value of tourist travel in four of the larger parks may be obtained by consideration of the financial reports of concessioners, which show gross receipts for past seasons in the following approximate estimates: Yellowstone National Park in 1912, $1,067,161.34; in 1913, $1,186,811.36, and in 1914, $848,688.44. Yosemite National Park in

1912, $311,444.32; in 1913, $359,481.45, and in 1914, $334,914.32. Glacier National Park in 1913, $161,510.87, and in 1914, $155,716.14. Mount Ranier National Park in 1912, $56,735.93; in 1913, $66,942.76, and in 1914, $61,078.08.

Financial reports of concessioners in the parks for the season of 1915 have not yet been received in the department, but in view of the large tourist travel to the far West initiated by the expositions held in California, it is anticipated that marked increases in gross receipts by national-park concessioners will be noted.

Third national-park conference: In prior annual reports attention has been directed to the very satisfactory results obtained from bringing together in conference the various park superintendents for the purpose of discussing the many difficult problems presented in the administration of these reservations. In March of the present year the third conference of superintendents was held at Berkeley, Cal., under the immediate direction of the assistant to the secretary, at which there were in attendance other representatives of this department, representatives of the Departments of Agriculture and War, of the transcontinental railways, of many of the concessioners in the parks, as well as a number of other persons interested in national park matters. Questions were discussed pertaining to hotel accommodations, sanitation, transportation, construction of roads, trails, and bridges, forestry, fire protection, protection of game, and other phases of park administration. A detailed report of the conference will be published by the department.

The consensus of opinion at this conference as well as of those conferences held in 1911 and 1912, was that as many of the problems of park management were substantially the same throughout the several national parks, their supervision should be centralized or grouped together under a single administrative bureau specifically charged with such work. The conference developed many instances where economy and efficiency would be increased by a central administration of all the parks. For instance, the law does not permit the resident engineer of the Yosemite to be utilized at times in any other national park. A temporary surplusage of service or equipment can not be used to meet a corresponding need elsewhere. Without a central administration the national parks can not be handled together, like departments of one business, for the good of all.

Bills to create a national park service have heretofore been introduced in Congress, but none has as yet been enacted into law.

Appropriations and revenues: The total of appropriations made by Congress for protection and improvement of these parks during the year, expendable under this department, was $283,590, and the total revenues received from concessions in all the parks was $81,705.70.

Automobiles in the parks: Automobiles have heretofore been admitted under strict regulations governing travel of the roads to the Mount Rainier, Crater Lake, Glacier, Mesa Verde, General Grant, Platt, and Wind Cave national parks; over the Giant Forest Road, in Sequoia Na-

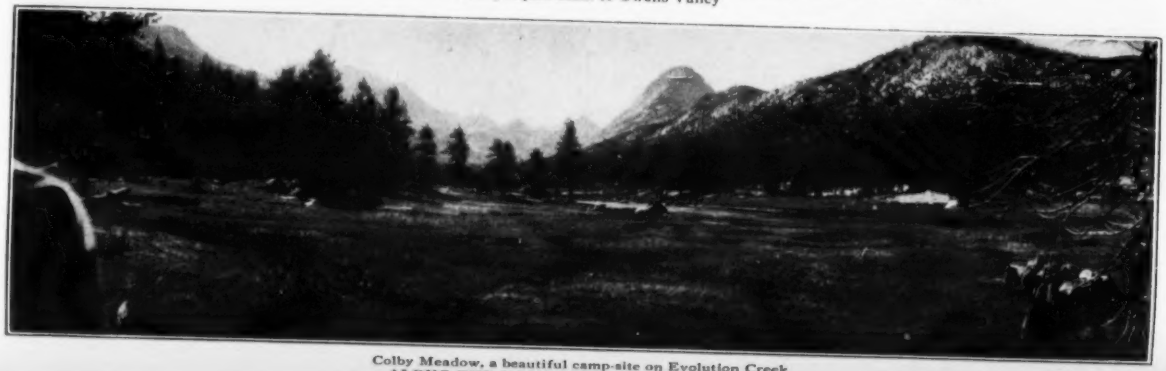
Seven Gables from Bear Creek

Evolution Lake, near head of Evolution Creek

ALONG THE ROUTE OF JOHN MUIR TRAIL

Photos by Paul G. Redington

Mount Abbott from Mono Pass. This pass, a few miles from John Muir Trail, is on the old route from the San Joaquin basin to Owens Valley



Colby Meadow, a beautiful camp-site on Evolution Creek

ALONG THE ROUTE OF JOHN MUIR TRAIL

tional Park; in Yosemite National Park, over the Coulterville Road from the Merced Grove of Big Trees into Yosemite Valley, over the Wawona Road leading to the Mariposa Big Tree Grove, and over the Big Oak Flat Road; and in the Yellowstone National Park, over a road in the northwestern section of the park not in general use, for the special accommodation of people of Gallatin County, Mont.

During the past season the generally traveled roads in Yellowstone National Park were opened to motor-driven vehicles, operated for pleasure purposes only, under strict regulations which became effective on August 1, 1915.

The opening during the year of Yellowstone National Park to automobiles used for pleasure purposes has been much appreciated by the traveling public. They were operated under a very carefully worked out schedule which has proved to be highly satisfactory.

This park was visited during the season by 958 cars, carrying 3513 people, which points to a much fuller enjoyment of the wonders in this park by motorists in 1916. The total receipts from automobiles and motor cycles in all the parks were $42,589.73 in 1915, as against $14,243.07 in 1914.

The extremely rapid development of motoring throughout the country, and its enjoyment by people of all degrees of income, has led to an active policy of road extension in all the national parks. An example is the acquisition and improvement of the old Tioga Road through the Yosemite National Park, establishing another highway over the Sierras.

Private holdings: The administration of affairs in all of the national parks, with the exception of the Yellowstone, General Grant, Platt, Wind Cave, and Sullys Hill, is considerably embarrassed by the fact that within the respective boundaries are many patented lands and some toll roads. These private holdings are as follows: Yosemite National Park, 19,827 acres; Sequoia National Park, 3,716.96 acres; Crater Lake National Park, 1337 acres, and 1,121.11 acres of unperfected claims; Mesa Verde National Park, 875 acres and 118 acres unperfected claims; Mount Rainier National Park, 18.2 acres; and Glacier National Park, 8,864.40 acres of patented lands and 7,803.71 acres of unperfected claims.

The majority of these lands, including the Mineral King Road in Sequoia National Park, and the Coulterville and Wawona toll roads in Yosemite National Park, should be acquired by the Government. During the year, through the instrumentality of Mr. Stephen T. Mather, assistant to the Secretary, the title by donation to portions of the "Great Sierra wagon and toll road" (also known as the Tioga Road) and the portions of the "Big Oak Flat and Yosemite Toll roads," within the limits of Yosemite National Park, were transferred to the United States, such donations being accepted by the Secretary of the Interior under the provisions of the sundry civil act of March 3, 1915, authorizing the Secretary of the Interior to accept patented lands or rights of way, whether over patented or other lands, in Yosemite National Park that may be donated for park purposes.

Colby Meadow, a beautiful campsite on Evolution Creek
ALONG THE ROUTE OF JOHN MUIR TRAIL

Congress, by the act approved April 9, 1912 (37 Stat., 80), authorized the Secretary of the Interior, for the purpose of eliminating private holdings within the Yosemite National Park and to preserve intact the natural timber along the roads in the scenic portions of the park, both on patented and park lands, in his discretion, to obtain by exchange complete title to any and all of the lands within the boundaries of the park held in private ownership. Among other things it was provided that the value of patented lands within the park offered in the exchange and the value of timber on park lands proposed to be given in the exchange should be ascertained in such manner as the Secretary of the Interior might direct.

The subject was taken up with the Yosemite Lumber Co., which has a large area of patented lands in the park, principally along the Wawona Road, and it was found that an exchange could not be made, for the reason that the value of the lands owned by the company with the timber thereon was far in excess of the timber on the park lands, and Congress, by the act approved April 16, 1914 (38 Stat., 345), amended section 1 of the act of 1912 so as to authorize the secretaries of the Interior and Agriculture, for the purpose of eliminating private holdings in said park and preserving the timber along the roads adjoining the scenic portions thereof on patented lands, to obtain and accept for the United States a complete title to any and all patented lands within the boundaries of the park "by the exchange of timber or timber and lands within the Yosemite National Park and the Sierra and Stanislaus National Forests for such lands and the timber thereon within the park."

Under this legislation the matter was taken up with the Yosemite Lumber Co., and a contract was entered into on January 18, 1915, between it and the department under which the Government is to give timber and timber lands in Yosemite National Park and Sierra National Forest to that corporation in exchange for lands and timber owned by it in the park and forest, the exchange values in each case to be equal. This contract is now being carried into effect under supervision of the representatives of the department in the park.

The act of Congress approved May 13, 1914 (38 Stat., 376), for the purpose of preserving scenic features and consolidating certain forest lands belonging to the United States within the Sierra National Forest and the Yosemite National Park, Cal., authorizes the Secretary of the Interior, on the recommendation of the Secretary of Agriculture—

"and after obtaining and accepting for the Government of the United States a valid title to the land to be acquired, which title shall be approved by the Secretary of the Interior, to exchange lands belonging to the United States within the Sierra National Forest for privately owned timberlands of approximately equal area lying within the boundaries of said national forest and the Yosemite National Park."

Under this statute an exchange of lands has been consummated which will result in the addition of 160 acres of land to the park.

Jurisdiction: The United States has exclusive jurisdiction over the lands in Yellowstone Park within the State of Wyoming and also over the lands within Glacier National Park, Mont., and Platt National Park, Okla., and Congress has provided a means of enforcement of the laws and regulations pertaining thereto. In the other national parks, however, over which the laws of the States in which they are located obtain, great difficulties in administration have been encountered, owing to the fact that the department has no jurisdiction to punish offenses in violation of the regulations relating thereto, and especially in the matter of preventing depredations on game and the selling of liquor therein.

Conservation of wild animal life: The national parks, free as most of them are from all public lumbering and private grazing enterprises, and protected by law from hunting of any kind, alone have the seclusion and other conditions essential for the protection and propagation of wild animal life. Eventually they will become great public nature schools to which teachers and students of animal life will repair yearly for investigation and study.

The enormous increase of wild animals in the Yellowstone since it became a national park in 1872 points the way. Deer, elk, moose, bison and antelope here abound in greater numbers no doubt than before the days of the white man, and many of them have become almost as fearless of man as animals in captivity. From here many State, county and city parks have been supplied, under proper restrictions, with surplus animals for propagation purposes. When interfering private holdings are extinguished in other national parks and United States laws made to supersede State laws, these, too, will become centers of animal preservation as effective as the Yellowstone.

Increasing park areas: Congress so carefully cut the boundaries of national parks to the express purpose for which each was created that, in some instances, scenic features of the very first order were excluded. In the careful study which the department has since made of each such territory it has become apparent that, in several instances, outlying territory should be added to these reservations. The most distinguished of these instances is Sequoia National Park, the boundaries of which should be extended to include the superb Kings Cañon on the north and on the east the Kern Cañon and the west slope and summit of Mount Whitney, the highest mountain under the American flag; also other instances are the Continental Divide for a few miles south of the new Rocky Mountain National Park, together with several small outlying features of extraordinary beauty.

New national parks: Of the 10 or more scenic neighborhoods claiming national-park status the most distinguished is the Grand Cañon of the Colorado, now classed as a national monument. This is one of the greatest natural show places of the world. It demands and should have immediate recognition and development as a national park.

Other proposed national parks have scenic value and availability of

high degree and will be considered as they come prominently before Congress through the desires and activities of the people of their respective States. It is the policy of the department not to actively seek the creation of new national parks but to develop and administer all such reservations accepted by Congress and intrusted to its care.

General superintendent of national parks: Mr. Mark Daniels, general superintendent and landscape engineer of the national parks under this department, made inspections during the year of the Mesa Verde, Platt and Wind Cave national parks, and the Hot Springs Reservation; supervised the enforcement of the regulations in the parks, the laying out of roads and trails, designing of buildings and structures, and the planning of general improvements; provided for the establishment of a unit cost-keeping system in the Yosemite National Park which has resulted in considerable saving, supervised the construction of a concrete bridge in the Mount Rainier National Park, and wooden bridges in the Yosemite National Park, and supplied plans and specifications for several different types of concrete bridges for other parks; replanned the road sprinkling system in Yosemite, established an automobile schedule therein, designed a complete road and trail system for five of the parks, prepared plans for a new village in Yosemite, installed a purchasing branch for the several national parks in San Francisco and purchased through the same materials for most of the western parks, and gave attention to many other details of park administration.

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Extracts from Report of the Superintendent of the Crater Lake National Park, 1915

HOTELS

During the season of 1915 Crater Lake Lodge was opened to the public and is located directly on the rim of the lake, nearly 1000 feet above the water, where comfortable quarters are available for guests. The lodge is a cut-stone building containing about 60 rooms, some of which contain hot and cold water and other conveniences. During the season of 1916 it is proposed to build along the entire front of this building, over 100 feet, a 16-foot porch and pergola, from which one can look directly into the lake, nearly 1000 feet below.

TUNNEL TO THE LAKE

From Crater Lake Lodge to the lake is a drop of nearly 1000 feet, and to reach the lake a trail of 2300 feet is provided. Owing to the rugged nature of the rim, this trail is necessarily steep and hard to climb, and many visitors are unable to go over it, so that they are denied the privilege of fishing or boating on the lake. This condition of affairs is a disappointment to many visitors and some sort of provision should be made to overcome it. A lift or other installation within the rim is wholly impracticable, for the reason that every spring enormous slides

of snow and rock would sweep any sort of framework into the lake. Under such conditions I would suggest the construction of a tunnel from a convenient point on the road, several hundred feet below the rim, to the surface of the water. With this end in view an appropriation of $1000 is desired with which to make investigations, surveys, etc.

* * *

Extracts from Report of the Supervisor of the Mount Rainier National Park, 1915

The Mountaineers, about 90 in number, with a pack train of 50 horses, made the circuit of the mountain in August. The trip around the mountain can be made in about seven days, with an average march of twenty miles over the trail. This trip, with proper advertising, should become a very popular feature of the park. By making camp each night at certain designated points in the natural parks and upland meadows, the tourist can travel on foot by the shortest route, between camps, keeping above timber line, and obtain a magnificent view of the mountain and surrounding country from all angles, affording one of the most interesting scenic trips in all the world.

* * *

Extracts from Report of the Superintendent of the Yosemite National Park, 1915

Arrangements have been made for the erection of two new buildings, to be used for fire-protection purposes, known as fire-lookout stations, or triangulation stations. One will be situated on Mount Hoffman and the other on Sentinel Dome.

During the past season there were constructed three new outpost or checking stations, which are used by the park rangers for outpost purposes, these cabins being located at Merced Grove, Crane Flat and Hog Ranch.

The following new outpost stations for rangers' use should be built the coming year: One on the Wawona Road, somewhere in the vicinity of Camp A. E. Wood, and a somewhat larger and more spacious outpost than those constructed this year should be built at Tuolumne Meadows, at which latter place are the Lambert Soda Springs and the Sierra Club's buildings, which accommodate a large crowd each season, and in the near future it will probably be necessary for two park rangers to be stationed at this outpost—one of the first class for ranger duty and one of the second class to check automobiles, as the Tioga Road is now open and a large number of cars will be passing over that road yearly.

Other new buildings especially needed are an administration building, outpost quarters of less elaborate construction than the checking stations, and rescue lodges or chalets, as well as a new hospital.

RANGERS

The ranger department was reorganized under the new park system installed this year, the park rangers being divided into two classes, known as park rangers of the first class (mounted) and park rangers of the second class (unmounted) or automobile checkers. The park-ranger force consists of a chief park ranger, Mr. O. R. Prien, two assistant chief park rangers, and two park rangers, all permanent employees, and seven temporary park rangers, all of the first class, together with four rangers of the second class or automobile checkers. With this ranger department the Government has been able to handle the checking of the automobiles, as well as the protection of the park against forest fires and poachers, with the enforcement of the park rules and regulations. This park-ranger force has very capably taken care of the work performed in previous years by troops of cavalry detailed from the United States Army and stationed in this park.

It is recommended that this park-ranger force be increased by at least two permanent yearly men, one to take charge of the insect-control work, which should be carried on each season and which has been under the direction of Mr. J. J. Sullivan, entomological ranger, detailed for duty in this park from the Bureau of Entomology, Department of Agriculture, and the other to take charge of the newly established information bureau.

FOREST FIRES

This season the forest fires did very little damage and were easily controlled by the park rangers, assisted by the other park employees.

Arrangements have been made and materials purchased for the construction of two fire-lookout stations or triangulation stations for the use of the ranger department for fire protection. Owing to the location of these stations, one being on Mount Hoffman and the other on Sentinel Dome, it will be possible with the high power instruments at hand for the ranger department to instantly locate a fire or fires within the district, and by the triangulation system be able to give the exact location of the fire immediately the fire starts. It is absolutely necessary that these two stations co-operate with the triangulation stations of the Forest Service where possible in the surrounding districts and that we have telephonic communication, so that we may work together in locating forest fires, for the protection of the park as well as the national forests surrounding the park. It would be well when funds are available to establish one or more of these triangulation stations in other districts of the park, as it will not be possible for these two stations to control the whole park area. These stations will lessen the expense of fire protection as well as afford a great protection to the forests of the park.

LAMBERT SODA SPRINGS

The Lambert Soda Springs at the Tuolumne Meadows, on the Tuolumne River, about 25 miles by trail from Yosemite Valley, have been of considerable interest to the visitors to the Yosemite National Park

this year, owing to the fact that it has been the first time in the history of these springs that it has been practicable for tourists to make trips to this part and have fine service, such as is given them by the Sierra Club in connection with its camp located near the Soda Springs. There were registered at this camp this season 2236 visitors.* This was partially due to the Tioga Road, which has recently been opened and affords the tourist a convenient way of reaching that point by automobile. The Lambert Soda Springs have this year for the first time received any large extent of recognition, and it would be well for the Government to take the necessary steps to advertise these springs.

The following is an excerpt from the report of Mr. Gerald A. Waring, found on page 237 of Water-Supply Paper 338, of pamphlet entitled "Springs of California," edition of 1915, prepared by the United States Geological Survey:

"The springs rise at the northern edge of Tuolumne Meadows, about 125 yards north of the river's edge, at the upper border of a grassy slope. There is only one spring of appreciable flow, but water bubbles from numerous vents near by. The spring rises in a funnel-shaped pool about 14 inches in diameter in a little log cabin that protects it. In August, 1909, it yielded about one gallon a minute, but its discharge is said to vary somewhat. The water is clear, strongly carbonated, and effervescing, but considerable iron is deposited in the pool. Within the cabin are also two small vents of inappreciable discharge, marked by bubbling. Six other similar pools, a few inches in diameter, lie on a low mound of iron-stained lime carbonate beside the cabin, and another group of eight small pools is located 15 to 25 yards northeast of the cabin. The water in all of the pools is carbonated and small amounts of iron and lime carbonate are deposited at nearly all of them. Efflorescent soda salts also appear in the adjoining grassy land. The following analysis shows the water to be primary and secondary alkaline in character:

Analysis of the Lambert Soda Springs

[Analyst and authority, F. M. Eaton (1909). Constituents are in parts per million.]

Temperature	8° C. (47° F.)
Properties of reaction:	
Primary salinity	11
Secondary salinity	0
Tertiary salinity	0
Primary alkalinity	36
Secondary alkalinity	53
Tertiary alkalinity	7

* The above was the registration at the ranger's station, not at the Sierra Club Camp.

Constituents:	By weight	Reacting values
Sodium (Na)	229	9.96
Potassium (K)	5.3	.14
Calcium (Ca)	196	9.81
Magnesium (Mg)	20	1.64
Iron (Fe) / Aluminum (Al)	6.2	.22
Sulphate (SO_4)	24	.49
Chloride (Cl)	66	1.87
Carbonate (CO_3)	564	18.80
Silica (SiO_2)	58	1.93
	1,168.5	.....
Carbon dioxide (CO_2)	Present	Present

EXTENSION OF THE PARK BOUNDARIES

Under the act approved February 7, 1905, entitled "An act to exclude from the Yosemite National Park, Cal., certain lands therein described and to attach and include the said lands in the Sierra Forest Reserve," 542.88 square miles were excluded, certain parts of which lie on the eastern boundary of the present park, and which contain many scenic views such as the Devils Post Pile, lakes, high mountains, glaciers, cañons, which are in the judgment of many not equaled by any of the views that are within the present park boundaries. Such beautiful lakes as Thousand Island Lakes, Garnet Lake, and the Minaret, with the glaciers leading into it, and the floating glaciers in the lakes are remarkable. These lakes lie at the foot of Mount Ritter and Mount Banner, which are of great beauty, and also Mount Ritter is of higher altitude than any of the mountains within the boundaries of the present park and gives a very commanding and impressive view. This section compares very favorably with the Canadian Rockies, and would make a beautiful trip of scenic value in connection with the people visiting the Tuolumne Meadows and the Lambert Soda Springs by automobiles traveling over the Tioga Road.

I therefore would recommend to the Government that the necessary steps be taken to have put back into the park boundaries all the land excluded by this act lying on the eastern boundary of the park, and also taking in township 1 north, range 25 east, which will include the wonderful set of Saddlebag Lakes and also the Leevining Cañon, which is traversed by the Tioga Road after leaving the park boundaries in its route to Mono Lake, and which is of so much value to the park at the present time that people travel from Yosemite Valley, a distance of 80 miles through the park land and out of its boundary on the east side, for the one purpose of seeing Leevining Creek Cañon, which is in the opinion of many people not equaled by the Grand Cañon for its impressiveness as to depth, ruggedness, and other scenic beauties. Its head is continuously capped with snow, large waterfalls pouring down the cañon.

From this road may be seen the Mono Craters, and one can see the edge of the desert far in the distance. This additional land will mean a great deal to the park from a scenic standpoint.

GEO. V. BELL,
Superintendent

* * *

EXTRACTS FROM REPORT OF THE GENERAL SUPERINTENDENT AND LANDSCAPE ENGINEER OF NATIONAL PARKS, 1915

Many of our parks are truly vast in area, encompassing within their boundaries innumerable wonders. To reach these the tourist, upon arriving at the park, must hire saddle animals, pack animals, a guide, cook and other help. The expense of such an outfit is prohibitive to all but the wealthy. Those who have waited and saved their money are denied the fuller enjoyment of our parks, for they can not bear the expense of transporting their supplies over the trails. There is but one solution of the problem of caring for this class of tourists, and that is the establishment of small inns at convenient intervals so that tourists may travel the trails afoot, purchasing their provisions and other necessities as they go. As you are aware, the first steps in an effort to bring about such a condition have been taken in Yosemite National Park. If this work is carried through, a blessing will have been conferred upon those whose lack of money has shut them from the greater part of our national parks. It will also be, in my opinion, the most potent factor in retaining, through the medium of our parks, a material percentage of tourist travel and will necessitate a careful consideration of the problem of a general policy.

To the east of Sequoia National Park is some of the finest mountain scenery in the world. The area in which the scenery lies is of little or no value for purposes other than the pleasure of scenery lovers. It contains the great Kern Cañon, Kings River Cañons, and Mount Whitney, the highest peak in the United States, together with almost innumerable other features. I can not recommend too strongly that the Sequoia National Park be enlarged to take in the areas to the southeast and east, which contain these examples of wonderful mountain scenery.

* * *

A BILL TO ESTABLISH A NATIONAL PARK SERVICE*

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:

Section 1. That there is hereby established in the Department of the Interior a service to be called the National Park Service which shall be under the charge of a director who shall be appointed by the Secretary, and there shall also be in said service such assistants and other employees as the Secretary of the Interior shall deem necessary.

* The American Civic Association is largely responsible for this bill through its national parks committee.

Section 2. That the director shall, under the direction of the Secretary of the Interior, have the supervision, management and control of the several national parks, national monuments, the Hot Springs Reservation in the State of Arkansas, and such other national parks, national monuments and reservations of like character as may hereafter be created or authorized by Congress.

Section 3. That the Secretary of the Interior shall make and publish such rules and regulations as he may deem necessary or proper for the use and management of such parks, monuments and reservations, as are hereby or may hereafter be placed under the jurisdiction of the National Park Service, and any violation of any of the rules and regulations authorized by this Act shall be punished, as provided for in Section 50 of the Act entitled "An Act to codify and amend the penal laws of the United States," approved March 4, nineteen hundred and nine, as amended by Section Six of the Act of June 25, nineteen hundred and ten, (Thirty-sixth United States Statutes at Large, page 857). He may also upon terms and conditions to be fixed by him, sell or dispose of timber in those cases where the cutting of such timber is requisite for properly controlling the attacks of insects or disease, or of otherwise conserving the scenery or the natural or historic objects in any park, monument or other reservation; grant privileges, leases and permits for the use of land, but only for the accommodation of visitors in the various parks, monuments or other reservations herein provided for, but for periods not exceeding twenty years, and that no natural curiosities, wonders or objects of interest shall be leased, rented or granted to any one on such terms as to interfere with free access to them by the public. It is further provided that in the granting of leases and concessions, and in the general management and development of said parks, monuments and reservations, no action unless specifically provided for by future enactments of Congress shall be detrimental to the fundamental object of these aforesaid parks, monuments and reservations, which object is to conserve the scenery and the natural and historic objects therein and to provide for the enjoyment of said scenery and objects by the public in any manner and by any means that will leave them unimpaired for the enjoyment of future generations. The funds derived from such sales, leases, permits and privileges, shall be deposited in the treasury as a general fund to be expended by the director, under the supervision of the Secretary of the Interior, in the administration, maintenance and improvements of the parks, monuments and reservations herein provided for.

Section 4. That the expenses incident to the establishment of such National Park Service shall be met out of funds allotted to the Interior Department for similar purposes and shall be submitted in the book of estimates furnished to the House of Representatives by the Department of the Interior.

Section 5. That all acts or parts of acts inconsistent herewith are hereby repealed.

FORESTRY NOTES

Edited by WALTER L. HUBER

THE FOREST FIRE SEASON OF 1915 IN CALIFORNIA

During the forest fire season of 1915 there were reported in District 5 of the United States Forest Service, which includes California and southwestern Nevada, 1190 fires. Of these 80.25 per cent were put out when they had burned over areas of less than 10 acres. The total acreage burned inside the National Forests by these fires was 41,990.05, and outside of the National Forests, 41,837.29. The damage is estimated at $7,343.79. These fires originated from the following causes: Railroads, 16; campers, 312; brush-burning, 62; lumbering, 58; lightning, 290; incendiary, 261; miscellaneous, 59; unknown, 132. With a fire season of the same number of days as that of last year the expenditure for fire fighting was only one-third as large.

PREVENTING FIRES ON TAMALPAIS

As a result of the great fire of 1913 the Tamalpais Fire Association was organized in the fall of that year. It has, therefore, been in operation for two seasons, and so far its record is an excellent one. During the two years a total of only 640 acres has been burnt over, which, on a yearly basis, is equal to eight-tenths of one per cent of the 40,000 acres under protection. It is also worthy of remark that only 30 acres of brush land were touched by fire, the remaining 610 acres being grass land. The actual damage was slight and consisted for the most part of the scorching of fences and out-houses.

It is frequently said that the Association has been "lucky." Of course a certain amount of chance enters into any system of fire prevention, and the results depend, to a certain extent, on the conditions of wind and weather when small fires break out. However, it seems only fair to assume that the good results on Tamalpais have been largely due to two things. In the first place, a campaign of education has been carried on which has impressed hunters, hikers and others using the mountain park with the importance of being extremely careful with the use of fire; and the education of the public has been supplemented by efficient policing during the dry seasons, with strict enforcement of the regulation which limits the building of camp fires to certain safely prepared spots, and which obliges one first to procure a written permit from the patrolman before lighting fires at these spots. These measures prevented the start of many fires which undoubtedly would have occurred in the absence of restrictions. In the second place, the organized fire-fighting forces of

the Association reached and extinguished all the small fires so quickly that they had no chance to spread beyond control. The preventing of fires from starting and the prompt suppression of little fires were the result of systematic work; luck played a very small part.

There have now been constructed twenty-four miles of fire trails, and this winter, which will complete the three-year construction period, it is planned to build six miles additional. These thirty miles, of course, are merely a beginning, for eventually every principal ridge and spur should be traversed by a trail, even if the clearing is no wider than necessary for a foot trail. Quick communication and bases from which to back-fire are the first essentials in any brushy country. It seems probable that all trails must be cleared out at least once every two years, calling for a maintenance expense of about $25 per mile; the original cost of cleaning out strips of from 10 to 20 feet in width has averaged in the neighborhood of $100 per mile, and even at this cost the roots of the brush can not be grubbed out.

Because of the fact that no fires have as yet approached the trails already constructed no test of their usefulness has occurred, although in other regions the efficiency of fire trails has been demonstrated for many years.

Several of the fires which have occurred during the past two seasons have started along the right of way of the Mount Tamalpais and Muir Woods Railway, doubtless from matches or burning tobacco carelessly thrown from the cars. That source will always remain as a considerable menace unless smoking on the trains should be prohibited. Other fires have started chiefly from hunters, from the burning of rubbish, and from boys playing with matches. The State fire laws are weak in many ways, and in several of the towns around the mountain the fire ordinances are defective. Remedial legislation will be attempted.

The main needs of the Association at present are many more fire patrolmen, more fire trails and a paid system for fire fighters. The creation of the Marin Municipal Water District will naturally help the work of fire prevention immensely, for it means the establishment of a 12,000-acre public park in the very heart of the Tamalpais country, implying permanent public management and greatly extended lines of travel. The Tamalpais Fire Association will continue in existence at least until such time as the water district is in a position to take over the work.

The plan of financial co-operation is the most unique part of the Association's work. There is no other similar organization in the United States in which so many and so different interests are welded together for the public good. All the land is privately owned and neither the State nor federal governments assist in any way whatsoever. The property owners subscribe 10 cents per acre each year, according to the size of their holdings; the towns contribute lump sums, more or less in proportion to their assessed valuations; and the public which uses the mountain as a playground aids financially through membership dues. The property owners, without exception, have contributed generously

and promptly, and, with one or two exceptions, the same is true of the towns; but the public which enjoys the mountain has responded lamentably. Not only is the membership list ridiculously small; more unfortunate still is the fact that one-third of the members lack sufficient interest in the work to pay their dues.

Incidentally, one-quarter of the Association's income is contributed by Mr. William Kent.

FREDERICK E. OLMSTED,
Consulting Forester

* * *

DEVELOPMENT OF THE RECREATION USE OF THE NATIONAL FORESTS
A CIRCULAR LETTER TO FOREST OFFICERS

Forest Supervisors and District Rangers, District 5:

What is the present status of the recreation use on your Forest? Not that I want a collection of dry figures on the number of travelers that annually go into the mountains. I want you to think about it. A few hundred or a few thousand auto- or wagon-campers wind up your roads in summer, or pack or hike over the trails in your back country. You know in a general way who they are and where they come from; but have you ever seriously studied them from the point of view of developing and promoting this use to the fullest possible extent?

What are the possibilities in this line? With no figures at all, simply from our general knowledge and common sense, we know that they are enormous. Every man or woman or child who gets out of a town or a hot valley and puts in ten days in the mountains in summer is a healthier, happier and better citizen for it. Do you begin to see the possibilities opening before us for contributing to the public welfare? Suppose we define the object we want to accomplish as increasing the recreation use tenfold in five years on every ranger district in every National Forest in California. Let's see how we ought to go about it.

The man who is going on a summer vacation will be looking for hunting or fishing grounds; for chances to live and sleep in the open—to camp; for impressive or beautiful scenery; for opportunities for swimming or boating, or for regions where he can explore unknown country or regions of scientific interest. Our job is to facilitate the accomplishment of these objects by the prospective vacationist. The most obvious road to it is publicity.

What is wanted is to tell as many prospective visitors as possible all they would want to know about a trip into the mountains. A map is probably the most effective and useful means of conveying this information. Suppose each Forest starts systematically to work this winter preparing the very best "Recreation Map" possible. The information is all collected—it is either in the files or in the heads of one or more officers. It remains only to get it into usable shape.

Take the camper map as a base, and put all the recreation data on it

as shown in the attached legend. I am informed that it will be mechanically impossible to run our existing camper maps through the press and have this data printed on them. Therefore, each Forest will go ahead and prepare the rough draft for a new edition of recreation maps which we will request Washington to lithograph for us in large numbers. These maps when completed should show to the prospective visitor everything of interest or value, among which are:

1. Outfitting points:
   - Where camp supplies can be obtained.
   - Where gasoline can be obtained.
   - Where saddles and pack stock can be obtained.
   - Where guides, packers or camp-tenders can be obtained.
   - Ranches where butter, milk, eggs, etc., can be obtained.
   - Where meals and lodging can be obtained.
2. Routes of travel:
   - Roads passable for autos.
   - Roads passable for wagons.
   - Trails passable for stock.
   - Trails passable for foot travel.
3. Horse-feed:
   - Meadows where cattle-grazing is permitted.
   - Meadows where cattle-grazing is not permitted.
   - Meadows fenced for use of traveling public.
   - Meadows fenced for use of Forest officers only.
4. Particularly good camp grounds.
5. Interesting areas and scenic points:
   - Forest.
     - Particularly fine timber.
     - Forest Service stations or improvements.
     - Telephones, post-offices, stage stations, etc.
   - Of geological or historical interest.
   - Of botanical interest.
   - Of interest to mountain climbers (safest routes to top indicated).
   - Of interest to hunters.
   - Localities where deer, bear, quail, grouse, etc., are most prevalent.
   - Of interest to fishermen.
     - Stocked streams and lakes, with kinds of fish.
     - Barriers impassable to fish.
   - Of general scenic interest.
     - Waterfalls.
     - Lakes.
     - Cañons.
     - Peaks.
     - Points from which wide views may be obtained.

Other features which should go on such a map will occur to you. I should be glad to have you send them in, in order that all new ideas on this subject may be circulated. We do not want Forest travelers to have to learn to read recreation maps anew for every Forest, so the legend should be standardized. I enclose a suggested standard legend, and shall be glad to receive comments upon it.

Also, what do you think of getting up a recreation leaflet for each Forest to supplement the Forest map—the leaflet to outline certain trips and contain descriptive matter covering the principal recreation features, tables of distances (when not on back of map), and possibly a few photographs? Would the work and expense of this be justified?

Another thing needed is a district poster, with some such title as "The National Forests—California's Recreation Grounds," showing the location of the National Forests in relation to the cities and railroads of the State, and the terminals and routes of all auto and horse stage-lines reaching from railroad points into the National Forests. Please send in to this office the railroad terminal and stage-line data on a proclamation or other small-scale map of your Forest.

A systematic plan must be made to secure the most effective distribution possible of the above information material. The district poster should be sent in quantities to all railroad headquarter offices for posting in every railroad station in the State. It should also be in all garages. Forest recreation maps should be distributed from Forest and district mailing lists; through universities, schools and State government bureaus; through county governments, county and city boards of trade and chambers of commerce; through sporting-goods dealers and clubs, and through magazine and newspaper publishers. Further suggestions along this line are wanted.

* * * * * *

Passively permitting the public to enter and occupy their own property is no public service whatever. The question is, what more can be done by Forest officers to promote recreation use?

There are many opportunities. We can encourage registration, in order to get in touch with the traveler in case of emergency. We can take careful note of campers' horses so as to be of help in case any are lost. Opportunities will arise for tactful hints on care of horses in camp—the making of humane hobbles, for instance, or more comfortable camps. We will put into general use the system of cards of introduction devised by Ranger Wilson of the Tahoe. We can be sure that each party has all the information needed about trails, routes or country. A lost man ought to mean neglect somewhere and a black mark against the Forest where it occurs. We have only started in the business of posting signs—a real public service.

We will consider that the recreation use is one of our major lines of work. Please be prepared to submit with your next improvement estimates the most important projects along this line. We expect to spend

some money on it, and will want to consider projects for tourist trails, drift fences to keep stock out of valuable recreation areas, fenced campers' pastures, improved camp grounds, water troughs, hitching racks, reclamation of eroding meadows by ditching, auto turn-outs on roads now unusable for lack of them, improvement of viewpoints, Forest portals and signs, etc.

In your time-estimates, please include such activities as stocking streams with fish, and exploration to develop new recreation areas.

There are many potentialities of securing co-operation in such improvements and activities. The camper trade is a profitable one for a locality, and county supervisors, chambers of commerce or sportsmen's clubs may be willing to work with us. Let us make sure that every organization which is willing has an opportunity to go the limit.

You or your deputy take many trips into interesting country on your Forest each year. Work up a party or two to go with you next season, made up of representative men from the region you wish to interest in the recreation resources of your Forest. This need not interfere with your regular work in the slightest, nor cost the government a cent. At the same time it will not only be the most effective kind of advertising, but will establish personal relations between the Service and recreation users that will be immensely valuable.

Most important of all, every supervisor and district ranger must see to it that he and every man on the job has the correct point of view. The *incorrect* point of view is that campers are nothing more than a fire risk, that they are a nuisance, or that their lack of knowledge of the mountains is ridiculous. The correct point of view is that each one is a citizen using the National Forest and becoming a better citizen by doing so; that while there he is the guest of the Forest Service, and that we have distinct responsibilities concerning him. It might be profitable to think what impression we are making on the camper. We will have made the correct one only when every visitor leaves the Forest convinced of the fact that the pine-tree badge, wherever seen, means courtesy, friendliness and helpfulness—and does *not* mean surveillance or officiousness.

(Signed) COERT DUBOIS,
District Forester

BOOK REVIEWS

Edited by MARION RANDALL PARSONS

"TRAVELS IN ALASKA"*

Whatever in the future may be given to the world of the journals and other unpublished writings of John Muir, nothing is likely to come to us more alight with his personality than are the two volumes published since his death. They bear an interesting relationship to one another, for not only do the *Letters* end just as he was embarking on the first of the journeys recorded in *Travels in Alaska*, but the latter book, the last to leave his hands, is still expressive of the ideals and enthusiasms of the young John Muir so vividly revealed to us in the letters. It is not often given to a man to have lived his life with such singleness of purpose, nor at three-score years and ten to have so completely fulfilled the aims and ideals of his youth.

Travels in Alaska is a record of three journeys of exploration by canoe and afoot among the fiords and mountains of Southeastern Alaska. Although prospectors, traders and a handful of missionaries were scattered among the islands, and were beginning to push up the great river valleys, the greater part of Alaska was in 1879 still unexplored, its fiords uncharted since Vancouver's day. With Fort Wrangell as his base, Mr. Muir made several short steamer trips, which gave him the opportunity to learn something of the glaciers and forests of the vicinity. After his return from an extended trip up the Stickeen River in October, he set out with Mr. Young, a Wrangell missionary, and a crew of Indian canoemen, to visit the fiords to northward, near the country of the warlike Chilcat tribes. Their eventful journey culminated in the discovery of Glacier Bay and its glorious company of glaciers, the largest of which bears Mr. Muir's name. The following year he continued his explorations, particularly in the region of Sum Dum Bay and the Taku Fiord, and in 1890 returned a third time to the Muir Glacier for a more extended exploration of its upper fields and study of its flow.

Today, a generation after the journals were written that are the basis of this book, it is easy to under-rate Mr. Muir's great service to science. He was the first American geologist to grasp the extent and scope of the glacial phenomena of our continent. Others have followed in the paths of research that he pioneered, and have laid before the world the truths he was the first to recognize. "Many detailed proof-facts will be required to compel the assent to this in the minds of most geologists . . . but the glacial millennium will come." In this, as in many another passage of the original journal, omitted in the book, one may read Mr. Muir's quiet

* *Travels in Alaska*. By JOHN MUIR. Houghton, Mifflin Company, Boston and New York. 1915. Price, $2.50.

confidence in the truth of his theories, his knowledge that the time was not ripe for their general acceptance. It is a wonderful tribute to the thoroughness and soundness of his early investigations that none of his theories had to be modified in the light of later discoveries. His long, patient revision of his notes was devoted entirely to the task of bettering the expression of his early thought, never to any change in the substance of the thought itself.

No attempt has been made to rewrite or finish the book, which is presented as Mr. Muir left it, with the exception of some of the chapter divisions and the transposition of certain passages, and even these minor changes were made in accordance with Mr. Muir's expressed intentions. It is not complete, inasmuch as it ends in the middle of the trip of 1890, nor as a whole can it be regarded as a finished production. The inequalities at once apparent in its style were not at all due to failing powers, but only to the fact that time was not granted him to finish it. Mr. Muir's best work was always slow of fruition. To appreciate fully what the world has lost, one has only to compare the earlier published story, *Stickeen*, with the passages in Chapter XV, which give the incidents of that story practically as they were first written in the journals. The vivid, forceful language is there, the keen delight in the wild, stormy, icy day, the sense of oneness with elemental things, and yet it lacks something of the flashes of insight, the philosophy, the poetry, the illuminating touches of the master hand that make the little story a classic.

Nevertheless the book abounds in passages of wonderful beauty. The description of his camp-fire in the storm, of the auroras, of the sunrise in Glacier Bay, of the view from Glenora Peak, and a score of others, will rank among his best work. An interesting aspect of the book is the new light in which it places Mr. Muir in his relation to humanity. His fine, broad understanding of the Indians, their virtues, their failings, the hopelessness of their situation, where the approach of civilization brought mainly the "contamination of bad whites," is manifested most sympathetically throughout. His meeting with the coureur-de-bois, Le Claire, and their intimate companionship for a day and a night before life parted them forever, is another revealing glimpse of the John Muir known to his friends, the big-hearted, open-minded companion, the lover of all things simple, sincere and best in mankind.

In this as in all his other books two qualities stand out pre-eminently —the sincerity of his enthusiasm, the intensity of his religious faith. The sound in the flow of a stream, the note of a thrush, the roar of a rain-laden gale—each of nature's voices was to him the "very voice of God, humanized, terrestrialized, entering one's heart as to a home prepared for it." Perhaps in the years to come his greatest claim to the world's love and reverence will be that in an age of groping, dark materialism he kept alight the flame of simple faith in God, of belief in the spiritual character of nature's influence on man. M. R. P.

"LETTERS TO A FRIEND"* Slight in form in comparison with his later writings, these early letters of John Muir to his friend come to us as a voice from the past, bearing a charm and a fragrance like that of his own dear flowers. Written to one who in motherly affection offered her appreciation and sympathy, they are the outpouring of a heart in whose greatness many were to find companionship. But like all who bear to mankind a revelation of the invisible, Muir was destined to pass many lonely years with nature and with God before people in general were willing to receive his message.

In 1868 Muir yielded to that silent but potent invitation which the great forests and wild-flower gardens of our glorious California ever extend to the lover of nature. Inquiring the way to Yosemite, he set out afoot across the continuous flower fields of the central valley, pausing at night to lie beneath their enfolding bloom, and pressing onward by day toward the heavenly mountains that were to receive him as their own.

With an undying enthusiasm this prophet of the mountains casts forever aside the advice of his well-meaning friends, who would have him enter a career that amounted to something, and, with unspeakable joy, he roams over the untrodden paradise of our great Sierra Nevada.

Patiently he studies the life of bird, and flower, and tree, discovering their inmost secrets and enabling them to converse with us in a common language. He forms close acquaintance with glaciers, standing amid a storm of criticism as their friend, for he showed how they have carved and polished these mountains and made possible the peace and joy of the valleys. Even the rocks seemed to reveal to him their age-long secrets as he saw in them God's own writing.

In the incomparable waterfalls of Yosemite and other valleys of the range Muir found an unending source of pure delight. How reverently he worships their creator as he listens to their changing music! Each tiny drop to him is a heaven-born voice, and all are singing in wondrous melody. By night as well as by day he mingles with their spray, on one occasion following a tiny ledge that led him far behind the great Yosemite Fall. Here, amid its ceaseless thunder, he watches the moonbeams as they filter through the mist. As he lingers long, some spent comets of the fall are blown inward, acquainting him with their hidden power, and speedily inducing him to depart from their sanctuary.

But it is to the glorious, eternal mountains that Muir oftenest turns. With only a crust of bread, living on air and water as only a mountaineer knows how, he seeks their distant summits. In all our wide domain none are more transcendently beautiful than these heavenly mountains. In their flowery valleys, filled with giant trees, innumerable lakes and fairy falls, even the unfeeling traveler must linger with delight, while in

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* *Letters to a Friend.* Written to Mrs. Ezra S. Carr, 1866-1879. By JOHN MUIR. Houghton, Mifflin Co. 1915. $3.00 net.

the higher regions of the range the wanderer will long find solitudes and mountain peaks unspoiled by man.

First of all, in spirit, Muir shares these joys with his friend, then reveals his heart in his letters. True friendship ever reaches far beyond the lives of those who find it. We feel with him the passion pure for God and His creation. Each mountain peak that Muir ascended calls us still to worship as in distant years they called their friend and prophet. With him we see again the holy morning's Alpine glow crown Shasta's distant summit, and by his side, in spirit led, our hearts respond in glad thanksgiving.

While we commend these letters of John Muir to the attention of all who are his true friends, we suggest that acquaintance with our greatest prophet of nature, and that of the land he loved, be further formed through his *Mountains of California, Our National Parks, The Yosemite,* and *Travels in Alaska.* Then will one roam through the valleys and over these mountains of God with seeing eye and understanding heart, while, perchance, the vision of eternal beauty that was his will become one's own.

LE ROY JEFFERS

"ALASKA DAYS WITH JOHN MUIR"*

Every lover of nature and of the mountains will find lasting enjoyment in this volume of Alaskan travel and adventure, and in the account written by John Muir entitled *Travels in Alaska.* Mr. Young first went as a missionary to the Indians of Southeastern Alaska in 1878. There he was visited in the summer of 1879 by Dr. Sheldon Jackson and other leaders of the Presbyterian denomination. With them went John Muir, already famous for his articles on the mountains of California.

Establishing their headquarters at Fort Wrangell, the party chartered a steamer to visit the Indian villages and to explore the cañons of the Stickeen. They found inspiring scenery between the precipitous walls of the river, where beautiful groves of evergreen were carpeted with flowers, and singing waterfalls filled the air with music.

Late one afternoon, John Muir, who was always an indefatigable walker and mountain climber, started with Mr. Young for a distant peak from whose summit they expected to view the sunset. They sauntered along botanizing and enjoying the unfolding landscape as they ascended the mountain. After crossing a glacier and climbing the cliff to a point near the summit, they realized that they must proceed more rapidly if they were to complete the ascent. Pressing forward, Muir fairly slid up the mountain, while Young followed as fast as he was able. In crossing a gulley Young's footing gave way and he found himself sliding downward with both shoulders dislocated. He was unable to check himself until he actually overhung a thousand-foot precipice. Whistling in order

* *Alaska Days with John Muir.* By S. HALL YOUNG. New York: Revell. 1915. $1.00 net.

to encourage his friend, Muir was finally able to reach his side. Hanging to the cliff with one hand, with the other he swung Young out over its face, and, pulling him in, grasped his collar with his teeth. Then, with both hands free to climb, he ascended for ten or twelve feet to comparative safety. All that night Muir carried and assisted this helpless man down through ten long miles of unknown glacier and cañon, reaching the steamer in the morning. With this introduction it is little wonder that these two became fast friends.

On another excursion they visited Glacier Bay, naming many of the wonderful tumbling rivers of ice which flow into the sea. Muir's description of the voyage among the islands, of the ever present glacier-crowned mountains and of the marvelous colors of the floating ice, reveals an appreciation of beauty which has seldom been equalled.

In 1880 Muir and Young charter a canoe and sail northward, studying the Indian tribes and speaking at their villages. These were the early days of Alaska, and rivers of salmon were found in which there were apparently more fish than water. The quest for gold held no allurements for Muir, and awakened only pity in his heart when he beheld men blind to all but a fortune. Muir's treasure was of flower, and bird, and tree; in them he rejoiced as only a soul that is free from the search for outward things knows how.

A most interesting exploration is made of the fiords of Sum Dum Bay, and far in the heart of one of these is found a wonderful valley with flower-hung walls rising thousands of feet above the water, while a great tumbling glacier hurls its bergs into the peaceful waters. This was appropriately named Yosemite Bay.

Mr. Young's story of the famous adventure with Stickeen is dramatically told, but no one in search of adventure should fail to read Muir's own account of his trip over the vast Taylor Bay Glacier. Unlike most men, he could not remain indoors during a storm, but regardless of darkness or danger, would match his powers against all of nature's forces. In the worst weather, alone, except for Mr. Young's little dog Stickeen, Muir crosses this widely crevassed glacier. Returning at night, they loose their way on its surface, and, after jumping an eight-foot chasm, find themselves on an island, from which they escape only by traversing a frail sliver of ice seventy-five feet in length. Muir often seemed protected where other men would have met their fate.

Mr. Young has given us a vivid, lifelike impression of John Muir, of his vitality and abounding enthusiasm, above all of his abiding consciousness of God as directing all the processes of nature, and delighting in the beauty of the life which He is constantly creating. For him the trees wave and pray, while the lilies ring their bells for joy.

John Muir's place in the literature of our western mountains, trees, and flowers is easily foremost. His gospel of beauty and of joy is destined to become increasingly known as the truth of his message is attested in the experience of all who follow in his footsteps.

LE ROY JEFFERS

"PEAKS AND PRECIPICES"*

Mountaineering has its historians, and its men of science, its artists and its poets; Guido Rey is one of its poets, although he writes in prose. Mountaineering, as it is known in Europe at least, has also developed specialists in the several branches of its technique, and Signor Rey is an eminent authority on his specialty. This specialty, the reader of his books will discover, is that phase of mountain climbing known colloquially among Sierrans as "rock-work." In the arduous scaling of precipices, demanding more than human nature can normally supply of fortitude and endeavor, Signor Rey finds a consuming joy. His book is an apology for that form of madness which drives men to attempt these "impossible" climbs, and so frankly, so appealingly and so beautifully does he describe them and their noble effects of inspiration and elevation above the level of normal mortal experience, that at the end he almost convinces the reader of the reasonableness of these perilous enterprises; he is altogether convincing as to the fascination of them.

Descriptions of ten of the author's later climbs, literally "peaks and precipices," in the Dolomites and the Savoyan Alps, constitute his book. But the combination of the specialist in his particular form of sport with the vision of the poet which is the man himself makes his story something altogether different from the usual records of mountain climbs. The pages fairly glow with the writer's vibrant personality, which warms the reader to an unusual intimacy of thought and feeling. And the man himself wins the esteem of mountain lovers. Manly, simple, good-humored, unassuming in his narrative, Signor Rey yet loves his mountains with an ardent passion which is more than phrases. Contact with them gives inspiration and strength; they are "human, wholesome, loyal, unbroken, incapable of treachery." Each precipice and peak is individually a friend, the more so for the terrific struggle of dominating it. But Signor Rey's joy in these remarkable climbs is not from success in the physical struggle, for all his natural but very modest pleasure in his prowess (he had passed his fiftieth year when these later climbs were made). He rejoices much more in the spiritual exaltation of the effort and of the victory, in the "self-revelation which we attain through the savage struggle with the mountains," in the "arduous fatigue which gives health to the body, the wonderful visions that ennoble the intellect, the great emotions that mature the soul."

It is fortunate that a man so sympathetic as Guido Rey with the spiritual lessons of the mountains is so gifted with the power of expression. He lavishes upon the objects of his admiration a truly remarkable beauty of description. The familiar thrilling details of daring climbing are in his narrative described with unusual vividness. But still more admirable are the veteran climber's splendid tributes to the peaks he loves so well. The fervor and the beauty of his thoughts are poetic. One

* *Peaks and Precipices; Scrambles in the Dolomites and Savoy.* By GUIDO REY. Translated from the Italian by J. E. C. Eaton. New York. Dodd, Mead & Company. 1915. 238 pages, 76 illustrations. Price, $3.50 net.

is reminded of the directness of expression and the wealth of imagery of our own John Muir, and feels that, like Muir's many beautiful chapters, these of Rey's, "hymns of praise, proclaiming the ancient virtues and the eternal beauties of this earth," can come only from the depths of a great and understanding soul. Mountain lovers will read this book and rejoice in it. It is a classic of mountaineering literature.

The translator has shown himself in intimate sympathy with the author and his theme. The book is beautifully printed, illustrated with a quantity of excellent plates, and well indexed. A. H. A.

* * *

"THE OLD TESTAMENT IN THE LIGHT OF TODAY"* The theme of Professor Badè's book is stated in the subtitle, "A Study in Moral Development." It may seem to some that the author is undertaking to expound the obvious—one must concede, it would seem, a very considerable "moral development" from the Old Testament records of primitive beliefs and social customs, of primitive worship and ritual, to the standards of thought and belief of the later books. But even if it be conceded that a moral development is involved—nor is this so obvious to many, for many do not read the Old Testament from the point of view to which this conclusion appears—it is an extremely interesting and valuable work which Professor Badè has done in laying that development clear before the reader.

Still more valuable is the service which this study renders to the Old Testament in seeking to relieve it from a burden which it is not competent to bear—the burden of an immense moral authority, to which itself it lays no claim, except perhaps for the particular civilization and time to which it pertains. Doctrines still insist that the Old Testament shall be regarded as divinely authoritative *throughout* as a guide to morals and faith. A faith so founded must be found sooner or later to be incompatible with truth. Professor Badè shows the danger of such teaching to our Christian beliefs. But while his analysis and discussion deprives the Old Testament of the character which has been ascribed to it by dogmas, it enhances the value of these scriptures for what they really are—the record of the development of a nation from the primitive worship of nomadic barbarism into spiritual light. As such the Old Testament becomes the more instructive, and even inspiring.

Particularly valuable and instructive are the author's chapters, "The Moral Character of Jahveh and his Clients in the Early Literature, and "The Origin and Moral Significance of the Decalogue." A. H. A.

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* *The Old Testament in the Light of Today, a Study in Moral Development.* By WILLIAM FREDERIC BADÈ. Boston and New York, Houghton, Mifflin Company, 1915. xiv—326 pages. Price, $1.75.

"THE CONQUEST OF MOUNT COOK"* This beautifully illustrated and attractive volume is an interesting record of a woman's mountaineering experiences in the Southern Alps of New Zealand. It is primarily a book of adventure, though the frequent descriptions of the mountain scenes are sketched with clearness and appreciation. The climbs made by Miss Du Faur are exceedingly difficult, involving dangerous work on glaciers and steep rock faces, and entitle her to a place in the front rank of woman mountaineers. Miss Du Faur was the first woman to reach the summit of Mount Cook, and the first mountaineer to attempt the complete traverse of its three peaks. Many other of her climbs were first ascents. All of her climbing was done under the leadership of the guides Peter and Alexander Graham, to whom she generously accords all the recognition they deserve. For the general reader the only defect of the book is that the unusual features of New Zealand's mountain world—its tropical vegetation growing so close to the snows, its bird life, where parrots are found displaying an interest in recumbent mountaineers "altogether too personal for comfort," are touched upon only with tantalizing brevity. Miss Du Faur's very notable career as a mountain climber was inspired by a real love and appreciation of the mountains, and all mountaineers will wish her success in her future work.

M. R. P.

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"NATURE AND SCIENCE ON THE PACIFIC COAST"† The Pacific Coast Committee of the American Association for the Advancement of Science, in issuing this "guide book for scientific travelers in the West," has performed a valuable service not only for travelers, but for those of our own people in whom the interest in our outdoor world is awakening. We have not space here even to catalogue the interesting material collected by Joseph Grinnell and the fellow members of his committee in *Nature and Science on the Pacific Coast*. Three historical sketches are followed by articles on meteorology, geology, mineralogy, entomology, botany, irrigation, mountaineering, outdoor life, etc., all signed by names that give weight and authority. Among the contributors are many of our own members—Vernon Kellogg, Alexander McAdie, Joseph Le Conte, David Starr Jordan, Charles Atwood Kofoid, Willis Linn Jepson, William Albert Setchell, Harvey Monroe Hall—distinguished authorities, many of them of international repute. Maps of the chief Pacific Coast cities, geological and other charts, add to the value and attractiveness of this very interesting book.

M. R. P.

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* *The Conquest of Mt. Cook.* By FREDA DU FAUR. An account of four seasons' mountaineering on the southern Alps of New Zealand. New York, Chas. Scribner Sons. London, George Allen & Unwin, Ltd. 1915. Pages, 250. Price, $3.50.

† *Nature and Science on the Pacific Coast.* A guide book for scientific travelers in the West. Illustrated with nineteen text figures, twenty-nine half-tone plates and fourteen maps. Paul Elder & Company, San Francisco. 1915. Pages, 302. Price, $1.50.

"In the Oregon Country"* Catch an Easterner young enough and he may become more loyal to the West than many a born Westerner. Perhaps because he has experienced the "conservative pessimism" of the East he is the more likely to become enamoured of the "impulsive optimism" of the Pacific Coast. *In the Oregon Country* is a striking but not overdrawn picture of the West that Mr. Putnam has grown to love since he first, nearly eight years ago, struck out on the trail with the Sierra Club. Though the book deals chiefly with Oregon, he ranges over its borders into Washington and California too. From the mountaineer's standpoint the latter part of the book will be found most interesting, dealing as it does with the wilderness of the West rather than its agricultural or economic development. The last chapter is devoted to his summer in the Sierra, including a knapsack journey through Yosemite Park and an outing in the Kern with the Sierra Club. The book is well written, truthful and entertaining, and shows a real love and enthusiasm for the present beauty as well as the hopeful future of this country of his adoption. M. R. P.

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"Mountain Exploration in Alaska"† Mr. Alfred H. Brooks, chief of the division of Alaskan mineral resources of the United States Geological Survey, is the author of Number 3 of *Alpina Americana,* published by the American Alpine Club. After an adequate description of the location and character of the principal mountain systems and ranges of Alaska, particularly of their glaciers and glaciation, Mr. Brooks gives a very interesting but brief account of exploration and mountaineering there, from the first glimpse of St. Elias recorded by Stellar, naturalist of the Bering Expedition in 1741, to the recent much-discussed ascents of Mount McKinley. Much of the exploring fell to the lot of our indefatigable Geological Survey, especially in connection with the International Boundary Survey in 1903.

The paper is uniform in size with the other two numbers of *Alpina Americana,* "The High Sierra of California," by Joseph N. Le Conte, published in 1907, and "The Canadian Rocky Mountains," by Charles E. Fay, issued in 1911. Like the others of the series, it is magnificently illustrated. It is unfortunate, from the point of view of those who esteem these excellent publications on the mountains of our continent, that they are issued at such long intervals. A. H. A.

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* *In the Oregon Country.* Out-doors in Oregon, Washington and California, together with some legendary lore and glimpses of the modern West in the making. By George Palmer Putnam. With 52 illustrations. G. P. Putnam's Sons, New York and London. 1915. Pages, 169. Price, $1.75.

† *Mountain Exploration in Alaska.* By Alfred H. Brooks. *Alpina Americana,* No. 3. Published by the American Alpine Club, Philadelphia. Baltimore, Williams & Wilkins Company. 1915. Price, 85 cents.

"THE ROCKY MOUNTAIN WONDERLAND"* Enos A. Mills is one of those refreshing and satisfying authors who writes, not because he wishes to make himself heard, but because he has something really worth while to say. His books are all records of the observation and experience of many years. His studies of the forests and wild animals are particularly interesting. In his descriptions of the wild animals he is at his best, for he is not only their observer, but their friend, who has grown into intimate knowledge of their lives and habits through long association with them. His style is crisp and vigorous, natural and direct. His latest book, *The Rocky Mountain Wonderland,* is full of interesting matter. Many of its chapters should prove no less absorbing to children than to their elders. For Sierra Club members it has special value as it describes many features of our newest national park.

M. R. P.

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MOUNT MCKINLEY AND MOUNTAIN CLIMBER'S PROOFS† The Mount McKinley controversy is reopened by Edwin Swift Balch in a very interesting monograph entitled "Mount McKinley and Mountain Climber's Proofs." Mr. Balch is himself a noted mountaineer and traveler, and his word carries with it the authority of experience. He adopts the ingenious device of printing in parallel columns quotations from the published descriptions of the three claimants to the honor of the first ascent of McKinley—Dr. Frederick A. Cook, 1906; Thomas Lloyd and party, 1910, and Dr. Hudson Stuck, 1913. A fourth column includes the description by Belmore Browne of the attempt made by him and Herschel C. Parker on Mount McKinley in 1912, when they reached a point within a few hundred feet of the summit, but were driven back by storms. The case for Dr. Cook is strengthened by the fact that his account of the climb was published long before that of any of the others. In Mr. Balch's opinion the "facts seem to be that the four climbers who say they have been on or nearly on the top of Mount McKinley told the truth, as well as they knew how, about their experiences. That Cook, Lloyd, Brown and Stuck, reporting as they do, though in different words, much the same facts and much the same experiences, corroborate one another." The discussion of Dr. Cook's disputed photograph of the summit would have been aided by a reproduction of that photograph and the alleged parallel by Dr. Browne. The last word has not been spoken on the subject, but Mr. Balch's able presentation of one of the most confused and disputed cases of mountaineering history deserves the careful consideration of all who are interested in the first ascent of America's greatest mountain.

M. R. P.

* *The Rocky Mountain Wonderland.* By ENOS A. MILLS. Houghton, Mifflin & Co. Boston and New York. 1915. With illustrations from photographs. Pages, 353. Price, $1.75 net.

† Mount McKinley and Mountain Climber's Proofs. By EDWIN SWIFT BALCH, Philadelphia, Campion and Company, 1914. Pages 142.

"GUIDE BOOK OF THE WESTERN UNITED STATES"*

The traveler in the Western part of the United States may behold from the car window monuments far more ancient and often more picturesque than the ruins of antiquity that are to be found in Europe. The mesas of Arizona and the weird rock formations of Wyoming and Utah have histories as full of stirring episodes as many a Rhenish castle or Grecian citadel. It takes no special knowledge to understand the great geological drama that has been enacted throughout our broad land; all that is needed is a sort of geological Baedeker to point the way. Realizing the possibilities of such a guide, the United States Department of the Interior, through the Geological Survey, has begun the publication of just such a series. Four volumes have been issued during the past year, and it is to be hoped that more are to follow, so that in the future they may be as conspicuous on the railroad trains of every line as the little red books are in Europe.

The plan of the series, as stated by the Director of the Geological Survey, George Otis Smith, is "to present authoritative information that may enable the reader to realize adequately the scenic and material resources of the region he is traversing, to comprehend correctly the basis of its development, and, above all, to appreciate keenly the real value of the country he looks upon, not as so many square miles of territory represented on the map in a railroad folder by meaningless spaces, but rather as land—real estate, if you please—varying widely in present appearance because differing largely in its history, and characterized by even greater variation in values because possessing diversified natural resources."

Of the four volumes issued three trace the transcontinental lines of the Northern Pacific, the Santa Fé, and the Overland routes, the fourth deals with the Shasta Route and Coast Line. The text is indexed by the railroad stations and is supplemented by well-chosen illustrations and by admirable maps. These maps are one of the chief advantages of the books. They show the principal features of the landscape for several miles on either side of the route by means of contour lines at intervals of 200 feet. Those who have used similar contour maps on outings in the high mountains may take particular pleasure in checking off the thin brown lines, enjoying at the same time the comfortable upholstery of the Pullman.

We have only one regret to express in connection with these books, and that is that they are not easy to find when wanted in a hurry. At present the books are obtainable only by writing to the Superintendent of

* *Guide Book of the Western United States.* Department of the Interior. United States Geological Survey, George Otis Smith, Director. Price, $1.00 per copy, $4.00 per set.

Part A. The Northern Pacific Route, with a side trip to Yellowstone Park. By MARIUS CAMPBELL and others. BULLETIN 611, 1915.

Part B. The Overland Route, with a side trip to Yellowstone Park. By WILLIS T. LEE, RALPH W. STONE, HOYT S. GALE and others BULLETIN 612, 1915.

Part C. The Santa Fé Route, with a side trip to the Grand Cañon of the Colorado. By N. H. DARTON and others. BULLETIN 613, 1915.

Part D. The Shasta Route and Coast Line. By J. S. DILLER and others. BULLETIN 614, 1915.

Documents, Government Printing Office, Washington, D. C. The price is one dollar a copy or four dollars for the set. F. P. F.

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"TRAIL AND TIMBERLINE"* The Colorado Mountain Club is to be congratulated on this very original and beautiful first number of its "Review in Picture." Except for a short paragraph describing each picture printed on the opposite page, and for an organization page giving the officers and committees of the club, the entire review is given over to splendid photographic reproductions. The good taste shown in their selection and their placing on the wide-margined pages cannot be too highly praised. Among so many fine pictures it is difficult to distinguish, but the very unusual "Inside a Glacial Crevasse" by Geo. C. Barnard, and "The Tree Frontier" by Albert H. Haanstad may be mentioned as making the strongest personal appeal. M. R. P.

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"PACIFIC OUTDOORS"† Our members will be interested in the new monthly magazine, *Pacific Outdoors,* whose initial number was issued December, 1915. It is an attractively illustrated number with articles of interest alike to sportsmen and mountaineers. The local walks of the Sierra Club are to be announced monthly in its columns. The following quotation from the leading editorial defines the purpose and scope of the magazine:

"We are going to stand for conservation of wild life; for the proper enforcement of those laws for its better protection; for new laws that will still better protect such life; for the pleasures to be had in outdoor life in fishing, hunting, camping, hiking, fly-casting, trap-shooting, yachting, motoring, both on land and sea, and for all clean sports that tend to bring out the best in us, to the end that we may improve our physical and mental sides and be better for it." M. R. P.

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The January, 1916, issue of *American Forestry* contains several articles of unusual interest to mountaineers. In particular we would mention *National Parks as an Asset,* by the Honorable Franklin K. Lane; *The Sequoia National Park,* a splendidly illustrated story by Mark Daniels, and *The Forests of Alaska,* by Henry S. Graves.

* *Trail and Timberline.* An annual mountaineering review in picture. The Colorado Mountain Club, 1915. George H. Harvey, Jr., secretary, 3120 W. 23rd Ave., Denver, Colorado.

† *Pacific Outdoors.* GEO. A. WENTWORTH, editor. Pacific Outdoors Publishing Company, 35 Montgomery Street, San Francisco. Issued monthly. Yearly subscription, $1.50; single copy, 15 cents.

"THE MOUNTAINEER" VOLUME VIII* The Mountaineers' annual publication comes to hand as the SIERRA CLUB BULLETIN goes to press. It contains a most interesting article by François E. Matthes, of the United States Geological Survey, on the methods used in mapping the Mount Rainier region, and in determining the height of the mountain by carefully checked vertical angles from known points.

Other articles of great merit are by G. F. Allen, supervisor of the Rainier National Forest, on forest types, and by Professor Edwin J. Saunders, of the University of Washington, on the geological history of Rainier. The activities of other mountaineering clubs are reviewed in a series of communications from the different clubs. The narrative of the 1915 outing of the Mountaineers stimulates a most cordial feeling of understanding with these our brothers and sisters of Puget Sound.

A. H. A.

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"THE CANADIAN ALPINE JOURNAL"† The new volume of the *Canadian Alpine Journal* is very largely devoted to the Northern Rockies in the vicinity of Mount Robson, newly opened to travel by the completion of the Grand Trunk Pacific Railway. Articles on the little known Purcell Range of the Southern Selkirks also appear. The records of the two camps established by the Canadian Alpine Club in 1913 and the Upper Yoho camp of 1914 are likewise included. It is an unusually interesting and well illustrated number. M. R. P.

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Two splendidly illustrated reprints from the *Geographical Journal* of March, 1914, and February, 1914, have been presented by the authors to the library of the Sierra Club. "Physical Characteristics of the Siachen Basin and Glacier System," by William Hunter Workman, and "The Exploration of the Siachen or Rose Glacier, Eastern Karakoran," by Fanny Bullock Workman. Dr. Workman has also presented his English version of an article from *Zeitschrift für Gletscher Kunde*. Band VIII, entitled "Features of Karakoran Glaciers Connected with Pressure, Especially of Affluents." The thanks of our members are due Dr. and Mrs. Workman for their courtesy in sending us these extremely interesting and valuable papers. M. R. P.

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SIERRA CLUB STATIONERY

The official die of the Sierra Club is now at the store of Paul Elder & Co., 239 Grant Avenue, San Francisco, who are prepared to execute orders for Club stationery.

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* *The Mountaineer*, volume VIII. Published by the Mountaineers, Seattle, December, 1915. 118 pages. Price, 50 cents.

† *The Canadian Alpine Journal*. Published by the Alpine Club of Canada, headquarters, Banff, Alberta. 1914 and 1915, Vol. VI, pages 263. Price, $1.50.

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